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THE NATIONAL ENERGY PROGRAM

UPDATE 1982

Canada

**THE NATIONAL
ENERGY
PROGRAM**

UPDATE 1982

METRIC CONVERSION TABLE

1 cubic metre (oil)	=	6.293 barrels
1 cubic metre (natural gas)	=	35.30 cubic feet
1 litre	=	0.2200 gallons
1 tonne	=	1.102 short tons
1 hectare (10,000 square metres)	=	2.471 acres
1 joule	=	0.0009482 Btu
1 petajoule	=	10^{15} joules
1 exajoule	=	10^{18} joules



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FOREWORD

On October 28, 1980, the Government of Canada announced a set of national decisions about energy. We acted from what we perceived to be a position of national strength—not weakness—in energy.

We knew that with a concerted effort by all Canadians, it was possible to achieve energy security—dependence from the world oil market—in this decade.

We knew that Canadians wanted and deserved to own and control more of their oil and gas industry.

We knew there had to be fairness: between governments and to consumers.

We also knew that none of these things was likely to happen unless the Government of Canada took decisive action.

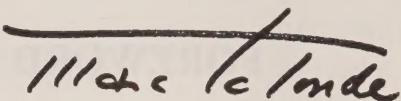
The National Energy Program has been a central topic of debate. Much of the debate has been helpful. More than ever, Canadians are aware that they are part of the solution to a solvable energy problem. More than ever, Canadians recognize how they can grasp the opportunities afforded by Canada's energy strengths. More than ever, Canadians appreciate the balances that must be struck in sharing the burdens and benefits of our energy situation—between producers and consumers, and between regions of the country.

The National Energy Program is not a single document, nor a static set of policies. The National Energy Program is a dynamic and comprehensive set of evolving responses to a changing world—whether through compromise with provinces, or through necessary mid-course corrections in specific initiatives or the fiscal burden. The National Energy Program has changed, and will continue to do so, as circumstances change and new opportunities emerge. The fundamental strength of the Program is this adaptability around a nationally agreed and unchanging set of objectives:

- Security of oil supply,
- Opportunity for Canadians to participate in their oil and gas industry, and
- Fairness in the distribution of energy benefits and burdens.

The Government of Canada is pleased with progress made to date. Canadians as taxpayers, producers and consumers, should be aware of this progress. This *Update* reports in detail on progress towards our three objectives. At the same time, some new measures are indicated to respond to new needs and circumstances. These are outlined in this *Update*.

The Government of Canada believes even more than it did on October 28, 1980, that its energy objectives are achievable in this decade. I believe that those who read this *Update* will agree with our assessment of the future.

A handwritten signature in black ink, appearing to read "MARC LALONDE". The signature is written in a cursive style with a horizontal line above it.

MARC LALONDE
Minister,
Energy, Mines and Resources Canada.

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Chapter 1

INTRODUCTION

This is an *Update* on the National Energy Program, a comprehensive set of measures to achieve energy security, opportunity and fairness for Canadians.

It will be clear from a reading of this document that much progress has been made toward all three of these objectives. Much remains to be done, but Canadians can respond to the measures in the Program in the knowledge that the energy goals announced in October 1980 are well within Canada's capacity to achieve, in this decade.

Much has happened since the Program was announced on October 28, 1980. Chapter 2 discusses some of the major events in the oil and gas sector. The most prominent of these was the successful conclusion of a set of comprehensive, five-year agreements between the Government of Canada and the producing provinces on oil and gas prices and taxation. These agreements provide an unprecedented framework for an equitable distribution of Canada's oil and gas revenues. They recognize the role and rights of the provincial governments with respect to their natural resources, while acknowledging the legitimate need of the Government of Canada to a share of the revenues, and its responsibilities in the area of interprovincial and international trade.

Canadians sometimes despair at the inability of their governments to join together in an effort to achieve national goals. The energy agreements represent a huge success in this regard. Four governments have set aside their differences to reach an accord that provides certainty to investors and consumers about future developments in the energy sector. More significantly, perhaps, these governments are committed to work together towards a common set of goals. The objectives of energy security, opportunity and fairness are widely accepted in Canada.

The same objectives underlie the agreement signed on March 2, 1982 between the Government of Canada and the Government of Nova Scotia, on offshore resource management and revenue-sharing. This breakthrough accord establishes a stable framework within which the industry can accelerate its efforts to find and develop oil and gas for the region and for Canada.

The global energy situation continues to change. The Iran-related oil price shock of 1979, and the fiscal and monetary responses to it, have caused a marked slowdown in world economic activity, and an unprecedented drop in world oil demand. This reduction in demand has put new pressure on OPEC and raised new uncertainties about the future course of international oil prices. Chapter 2 summarizes these developments, and discusses possible outlooks and

their policy implications. It concludes that it would be most unwise to allow ourselves to be lulled by the current world oil price softness into relaxing efforts to achieve energy security.

A number of factors have combined to produce a dramatic drop in oil demand in Canada. One factor is undoubtedly the impact of the world recession on Canada's economy. However, experience in 1981 shows that Canada can cut its oil use even when the economy is growing at more satisfactory rates. The energy policies implemented in the past year and a half have put Canada in the position where, when economic growth is more buoyant, oil demand will continue to fall. Some had thought the estimates made by the Government of Canada in 1980 were overly optimistic about the amount of oil savings that could be realized over the decade. It now seems that even those estimates understate the likely extent of the drop in oil use, at least in the short term.

The uncertainty about world oil prices, and the pressures exerted on the private sector by the current macroeconomic situation, have resulted in termination or deferral of the Alsands and Cold Lake projects. This occurred despite the offer by the Governments of Canada and Alberta of an attractive fiscal package. Moreover, the pace of oil exploration in western Canada is below desirable levels. There was, however, some good news on the Canada Lands. It now seems clear that significant oil production from the Canada Lands could occur within the decade, to supplement the large increases in new oil production expected in the western provinces. In October 1980, the Government of Canada said it did not assume, for purposes of a supply forecast, any frontier production. This assumption now appears unduly pessimistic.

Chapter 2 reviews these supply and demand developments. Imports of oil will likely decline faster than was previously assumed. Energy security, which prior to the National Energy Program seemed only a hope, now appears to be clearly feasible.

The National Energy Program is unusual in that it launches changes in almost every part of the energy sector. It affects many elements of the economy, and most Canadians. The NEP is a broad strategy designed to achieve its three objectives. It is, however, more than just a plan. It is a plan of action. It is a strategy backed with literally dozens of specific initiatives.

It is the very magnitude of the effort launched on October 28, 1980 that has prompted this progress report. Many could be forgiven if they have forgotten just how comprehensive the National Energy Program is. Also, many may have lost track of those initiatives.

The National Energy Program means different things to different Canadians.

- To a homeowner in Newfoundland, it may mean a special grant to help him super-insulate his home, to save oil and money.
- To someone in Prince Edward Island, it might mean a grant to install a wood stove.

- To a Nova Scotian, it might mean an agreement to manage the offshore and develop Sable Island gas.
- To a New Brunswicker, it could mean financial assistance for the conversion of thermal electric plants from oil to coal.
- To a Québécois, it could mean the availability of reasonably priced natural gas for his off-oil choice.
- To a householder in Ontario it might mean a home insulation grant, and free "how to" advice.
- To a Manitoban, it might mean the establishment in Winnipeg of Canertech, a new corporation whose role will be to stimulate and support entrepreneurs seeking innovative renewable energy technologies.
- To the heavy oil producer in Saskatchewan, it means strong action by the Government of Canada to assist him in marketing his product in Canada and in the export market.
- To an Albertan, it might mean generous financial and technical support for conversion of vehicles to compressed natural gas.
- To British Columbians, it could mean financial support to the forest industry under the FIRE program, to switch from oil to wood waste for its fuel needs.
- To a northerner it could mean federal support to provide lower-cost alternatives to oil for electrical generation, in both large and small communities.

In the months since October 1980, the Government of Canada has been prepared to modify a number of elements of the National Energy Program. Some might argue that the changes indicate a weakening of the Program. On the contrary, they are evidence of its fundamental strengths. The National Energy Program is not a single document. Nor is it a static set of prices, taxes or direct initiatives. It is a commitment to support efforts by Canadians to work co-operatively towards Canada's energy goals. Around an unchanging core of national energy objectives, policies must adapt and new instruments must be deployed, as the world changes.

The situation in the oil and gas industry is a case in point. The world economic recession, and the medium-term prospect of moderating oil prices, have brought new pressures on the oil and gas industry. The Government of Canada is committed to the spirit and the letter of its agreements with the provinces. It has already made modifications consistent with these agreements and of benefit to the industry, where these seemed necessary, and will continue to do so. Chapter 4 outlines some new issues relating to the producing industry, and new measures to resolve them, in the interest of energy security.

The energy agreements established a framework that the governments involved thought was adequate to produce a healthy oil and gas sector. Recently, however, the Government of Alberta has moved to reduce its royalties, partly to fulfill a commitment made last September and partly because it feels the changes in domestic and world conditions require some modifications.

The British Columbia government reduced its fiscal burden on the industry as part of the agreement. The new Government of Saskatchewan has announced that it will review its royalties. These are helpful initiatives, reflecting a shared desire to increase industry confidence and provide a stimulus to exploration.

Chapter 4 reviews the industry's current revenue situation. In aggregate, the framework now in place provides an environment that should allow this sector to prosper. However, there are two major problems. A variety of factors have combined to produce a short-term cashflow problem for the industry. Over the next 12 months, the industry's cashflows will be squeezed, and some restoration is needed. Second, the smaller firms have been particularly hit by high interest rates, weak capital markets and unsatisfactory gas sales. Thus, while the NEP was designed to help such firms, some have been unable to take advantage of the new regime because of their short-term cash-flow position.

The Government of Canada will therefore propose several measures to address these two problems.

Chapter 4 also addresses other new issues, which arise partly because of the delay of certain programs and initiatives, and partly because the success of the Program has already had consequences that necessitate a response.

There could be no clearer example of such "problems of success" than Canada's current shut-in oil situation. Domestic oil demand is declining faster than conventional oil production capacity in the western provinces. Imports therefore must fall. This has been occurring, but not always rapidly enough to ensure full use of Canada's domestic producing capability. This is not at all unusual by historical standards. On the contrary, production has frequently been at less than capacity in the past 10 years. Some shut-in of conventional oil is probably inevitable in any system where refinery operations fluctuate, and where a significant share of supply comes from two large synthetic oil plants whose output levels can vary substantially from month to month. Nevertheless, large and prolonged shut-ins are damaging to the industry, and to the Canadian economy, and cannot be tolerated.

Chapter 4 examines this problem in some detail. While some would argue that Canada's progress towards oil independence has been so dramatic that we can significantly reduce long-term import contracts, or allow long-term exports of Canadian oil, the Government of Canada believes such approaches would be imprudent at this time. Chapter 4 proposes a number of measures that should reduce our current shut-in problem while maintaining our access to imports.

Chapter 4 concludes by briefly reviewing the electrical sector in Canada. When Canadians think energy they often think oil and gas. Yet nearly 30 per cent of our primary energy comes from primary electricity, and the electrical sector represents one of Canada's great success stories. It is virtually 100 per cent Canadian owned, operating at the front edge of technology, and producing electricity in perhaps the most efficient and safest manner in the world.

There are new opportunities to build upon our electricity strengths, for regional and national benefit. One of these is the proposed Western Grid, which

would draw primarily upon Manitoba's hydroelectric resources to meet the needs of the broader region. The Government of Canada welcomes this initiative, and will consider requests for support for this important development.

The nuclear segment of this industry faces a difficult decade. Domestic demand for electricity has slowed and the world market for nuclear reactors has become extremely competitive. This industry has a role to play in Canada's energy future, and it is important to maintain it in as strong a form as economically sensible. While it is hoped that Canada's efforts in the export market will pay off, Canada must continue to build and maintain its domestic electricity options.

Chapter 5 provides an overview of Canada's energy outlook. The conclusion is fairly clear. Canada's oil dependence in the coming years will be significantly less than previously expected. Our long-term prospects depend on maintaining Canada's commitment to reducing oil demand, and on developing new oil in the western provinces, the frontier and the oil sands. The National Energy Program seeks energy security, and the objective is attainable, with a concerted effort on the part of producers and consumers.

The goals of opportunity and fairness also remain central. Indeed, the commitment to both has been strengthened, and there is much progress to report. The Canadianization program is well ahead of expectations, and few now doubt either our resolve, or the likelihood of success, in meeting our goals. Fairness in sharing of revenues between governments was achieved with the energy agreements. Canadians now enjoy lower energy prices than elsewhere in the industrialized world and will continue to do so. They will also enjoy made-in-Canada prices designed to meet Canadian conditions. The National Energy Program is fair to the consumer.

As the remaining chapters will indicate in more detail, the following is clear from a review of progress in the National Energy Program.

- The world oil outlook continues to be uncertain; with most analysts anticipating renewed tightness by mid-decade.
- While world price moderation is in many ways welcome, it would be most imprudent to slacken efforts to achieve, through economically viable solutions, independence from the world oil market.
- A comprehensive set of legislation and direct action programs is in place or will be within weeks, to add further impetus to oil supply, oil substitution, conservation and Canadianization.
- Remarkable progress has been made towards the objectives of the National Energy Program, in just 18 months.
- In terms of the overall oil supply-demand balance, Canada is closer to its energy security objectives now than in 1980.
- The oil supply picture is mixed, with much progress in the Canada Lands.

- While the federal-provincial agreements in 1981 modified the price and fiscal framework set out in the National Energy Program in 1980, the results are fully consistent with, and indeed reinforce, the three objectives of the Program.
- While the petroleum industry's projected situation appears satisfactory, there are areas of real concern in the short term, especially with respect to smaller oil and gas companies and the gas industry in general. These have to be addressed.
- The Canadianization effort has been both successful and popular, and the measures put in place will ensure its success within this decade.

Chapter 2

RECENT EVENTS IN THE ENERGY SECTOR

The energy environment has changed significantly since October 28, 1980. While some changes have raised new problems, many have been highly positive.

Agreements with the provinces

Intensive negotiations culminated, on September 1, 1981, in a five-year agreement between the Government of Canada and the Government of Alberta with respect to oil and gas pricing, taxes, and incentives.

The main features of the agreement are:

- A schedule of prices for conventional oil, covering the period 1981-86, under which prices will rise according to a fixed schedule, subject to a cap of 75 per cent of the international price;
- Prices for new oil that give producers the world price, but with safeguards to ensure that consumers are shielded from major, rapid increases in the world price;
- A pricing system that protects Canadian consumers from rapid increases in world oil prices, but allows the benefits of lower world prices to be passed on to them;
- A price system for natural gas designed to create a powerful incentive to consumers to convert away from oil but which gives producers ample cash flow, and protection from the risks of higher gas-transmission costs;
- An explicit set of taxes and royalties agreed upon by the two governments, and an agreement that neither government will change those measures in a way designed to reduce the revenues of the industry or the other government;
- Agreement that the natural gas producers and the Government of Alberta will contribute to a fund to support natural gas market development, to help the off-oil effort;
- Agreement by the Government of Alberta to finance and administer the Alberta component of the federal Petroleum Incentives Program, which will provide grants of up to 35 per cent of exploration costs, and up to 20 per cent of development costs, incurred by Canadian firms in the province; and
- A commitment by the Government of Canada to approve additional gas exports if the National Energy Board finds an increased surplus.

This agreement was followed on September 24, 1981, by a similar agreement with the Government of British Columbia. In this agreement the Government of Canada agreed to fund and administer the Petroleum Incentives Program in British Columbia and provide the New Oil Reference Price for conventional new oil discovered in the province. The Government of British Columbia undertook to pay certain taxes or equivalent revenues to the federal government and to make adjustments to increase netbacks to natural gas producers.

On October 26, 1981 agreement was reached with the Government of Saskatchewan. The Government of Canada agreed to fund and administer the Petroleum Incentives Program in the province and provide the New Oil Reference Price for conventional new oil discovered in Saskatchewan. In addition, key features specific to this latter agreement were:

- A commitment by each government to contribute \$15 million to support research and development of heavy oil;
- A commitment by Saskatchewan to reduce its royalty and tax burden on the industry;
- Agreement by Saskatchewan to make payments to the Government of Canada of amounts equivalent to its liability for specified federal taxes; and
- A mutual commitment to encourage construction of a heavy oil upgrader in that province.

Discussions are continuing with other provinces desirous of entering into similar arrangements. In the meantime, the Government of Canada provides the New Oil Reference Price to new oil in those provinces.

On another front, an important breakthrough was achieved on March 2, 1982, when agreement was reached with the Government of Nova Scotia with respect to the management of offshore resources, and the sharing of production revenues. Unfortunately, the Government of Canada was unable to reach similar agreement with the Government of Newfoundland.

Now, as never before, the oil and gas industry has a framework of intergovernmental accords, which spells out the specific arrangements on prices, taxes and incentives.

Canada - Nova Scotia Offshore Resources Agreement

This agreement, signed on March 2, 1982, sets out terms under which offshore oil and gas activity will be managed and the revenues from offshore production shared. The agreement gives Nova Scotians significant control over decisions made on offshore exploration and development, and ensures that they will be major beneficiaries of offshore development.

The main features of the Canada - Nova Scotia agreement include:

1. Shared objectives, including

- Increased energy security and economic prosperity
- Rigorous protection of the fishing industry and environment
- First consideration of Nova Scotians for jobs and the supply of goods and services on a competitive basis

2. Cooperative management regime

- The Canada - Nova Scotia Agreement established the five-person Canada - Nova Scotia Oil and Gas Board, composed of two provincial and two federal government representatives under the chairmanship of the Administrator of the Canada Oil and Gas Lands Administration. The Board directs offshore activity and advises the federal Minister of Energy, Mines and Resources
- Nova Scotia members on the Board have the power to delay some key land management decisions for specified periods of up to one year if they are opposed to a particular Board decision

3. Revenue sharing

- With the exception of the Federal Corporate Income Tax, Nova Scotia will receive 100 per cent of all public resource revenues from the offshore region, including the federal Petroleum and Gas Revenue Tax, until the province reaches an agreed level of income
- The "agreed level" is defined so that the province will retain a 100 per cent share until its per capita fiscal capacity is well above the national average
- Beyond the agreed level, the financial benefits of offshore production will begin to be shared with all Canadians, but on a gradual basis to ensure that the fiscal and economic benefits to the province are lasting
- Crown share: Nova Scotia has the first option to buy a share (50 per cent

for a natural gas field; 25 per cent for an oil field) in the Crown interest, and to benefit from increased involvement in the management decisions made by operators of offshore production projects

4. Other arrangements

- Offshore Natural Gas Trunkline—the Nova Scotia government can acquire, on a commercial basis, an interest of up to 50 per cent in any oil or natural gas trunkline from the offshore, including any extensions within Nova Scotia
- Sable Island—special resource management and revenue benefits for Nova Scotia from Sable Island
- Supply security—production from offshore resources must be used to meet hydrocarbon demand in Nova Scotia first before moving to other markets
- Canada - Nova Scotia Development Fund—A \$200 million fund will be advanced to the Government of Nova Scotia by the federal government over the period 1984 to 1987, enabling the province to develop new infrastructure to meet the demands of development at Venture and elsewhere in the offshore region near Nova Scotia. Nova Scotia will propose expenditures from the fund and both governments will approve expenditures. These advance funds will subsequently be reimbursed to the federal government from offshore production revenues.

The world oil outlook and its implications

Two significant developments have occurred since the second major jump in OPEC* oil prices in 1979-80. The worldwide economy has gone into a recession, and the consuming nations are making more vigorous and successful efforts to reduce their oil consumption. Although no country has as comprehensive a program as Canada's to address the oil problem, regulations and economic incentives have been introduced in most countries to accelerate energy conservation.

* The acronym for the Organization of Petroleum Exporting Countries.

The combined effect of economic recession and conservation has resulted in a steady decline in oil consumption, with no indication of an imminent reversal. Global oil demand, outside of centrally planned economies, that peaked in the first quarter of 1979 at over 9 million cubic metres (56 million barrels) per day declined to 7.5 million cubic metres (47.5 million barrels) per day by the end of 1981, a reduction of 15 per cent. The proportions of the contributing factors are not clearly known. It is believed, however, that the full conservation and substitution impact of the 1979-80 price run-ups has yet to be experienced, and that demand could continue to decline for at least another year or two.

Supply from non-OPEC producers, which generally tends to be at capacity, meanwhile increased modestly during this period. There was also a large increase in "supply" from a draw on stock, which had peaked in the 1979-80 period. OPEC production has fallen from 5.0 million cubic metres (31.4 million barrels) per day in 1979 to a reported 2.5 million cubic metres (16 million barrels) per day in April 1982.

These developments have tested OPEC's capacity to maintain its control over international oil prices. The current price softness, and a perception that this may signal a more moderate price outlook for the decade, has injected new complications into energy policy, and into the private sector's decision process. At the heart of the issue is the question: *Has there been a fundamental structural change in the world oil market, or will oil demand rise significantly, and renew the pressure on available or OPEC-determined supplies, as the world economy recovers?* Is the welcome sag in world oil prices a harbinger for the decade, or a dangerously false signal?

No one can predict with certainty the future course of world oil prices. However, there seems to be a preponderance of factors leading to higher, rather than lower, prices. These include the decline, since the mid-1970s, of world conventional oil reserves; the basic dependence of the consuming countries' economies upon oil; and the inherent instability of the Middle East region. In this connection, many have noted the growing role of Saudi Arabia as the "balance-wheel" of OPEC oil production. Some view this as a positive development; others are concerned about the concentration of supply, and the impact of political events in one or two important supplying countries. Such observers point to the experience of 1979-80 as a demonstration of dangers of this nature.

A moderate price path for world oil is not in itself damaging for Canada. While Canada as an energy exporter may gain from higher energy prices, Canada has learned that it can lose in an overall economic sense, to the extent that rapid international oil price increases disrupt world economic growth. No better proof of this is needed than the recognition that Canada's present economic difficulties are in large measure a symptom of the last oil price shock, as economies such as the United States are slowed down to fight the inflation induced by the 1979-80 oil price rises.

Canada does, however, face rather difficult challenges from the current international oil price situation. Some energy developments will be sensible

World Oil Production*
(millions of cubic metres per day)

	1960	1970	1980	1982 (est.†)
<i>OPEC</i>	1.4	3.6	4.3	3.2
Saudi Arabia	0.2	0.6	1.6	1.2
<i>Non-OPEC</i>	2.0	3.5	5.2	5.8
Centrally Planned Economies.....	0.5	1.3	2.3	2.3
Other	1.4	2.3	2.9	3.5
<i>Total World</i>	3.4	7.2	9.5	9.1
OPEC as a percentage of World.....	41%	51%	45%	35%

Source: International Petroleum Encyclopedia, 1981.

*Figures may not add up, due to rounding.

†EMR estimates based on data from International Energy Agency and Data Resources, Incorporated.

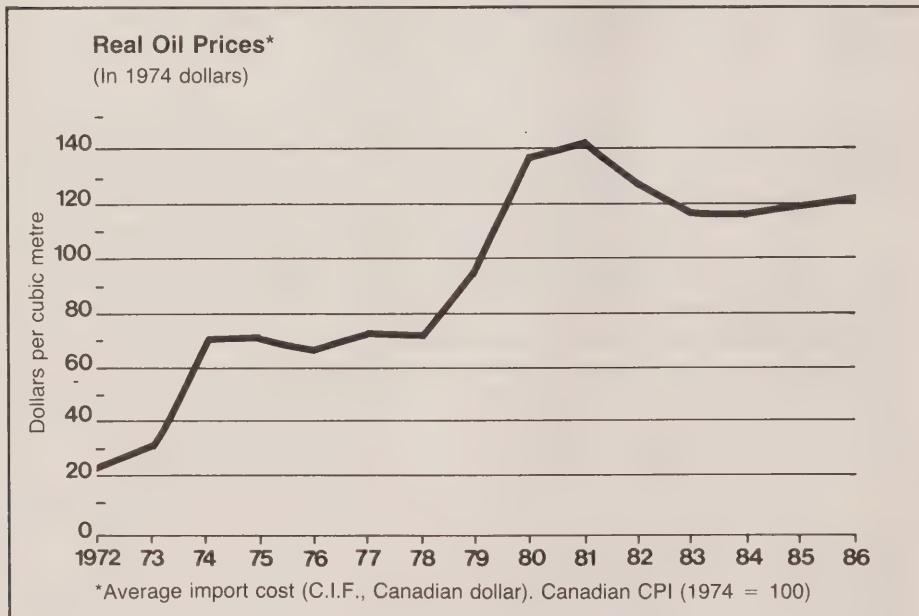
only if oil prices rise consistently in real terms. Others are viable with more moderate oil price increases. International oil price developments will, therefore, be a major factor in determining the extent of Canada's energy development, and the role of such developments in the Canadian economy. If future world prices were known, investment decisions could proceed, and the Canadian economy could readily adapt to oil price developments involving either higher or lower price increases. Obviously, energy development would play a lesser role in the economy in more moderate price scenarios, but Canada's energy strength is such that our energy objectives would not be significantly impaired. The outlook, however, is not necessarily for either low or high prices, but for uncertain prices. This uncertainty is damaging from Canada's perspective, and energy policies must be adapted to deal with it.

Canada's energy supply structure makes the challenge of price uncertainty especially great, because some of our options are large projects which require large investments, with long lead times. Uncertainty over the future course of prices poses particular problems for such projects. While innovative fiscal policies can go part way towards shifting some of the burden of uncertainty from the investor to governments, and thus to the public generally, projects which are marginally economic will face difficulties as long as this price uncertainty prevails.

Canada has, however, many energy options which are not inhibited by the current uncertainty, either because the project's economics are so good that investors can remain confident even with long lead times before pay-out, or because the projects are smaller, and the period to pay-out is less. Policy should therefore encourage Canada's many smaller-scale supply options to proceed.

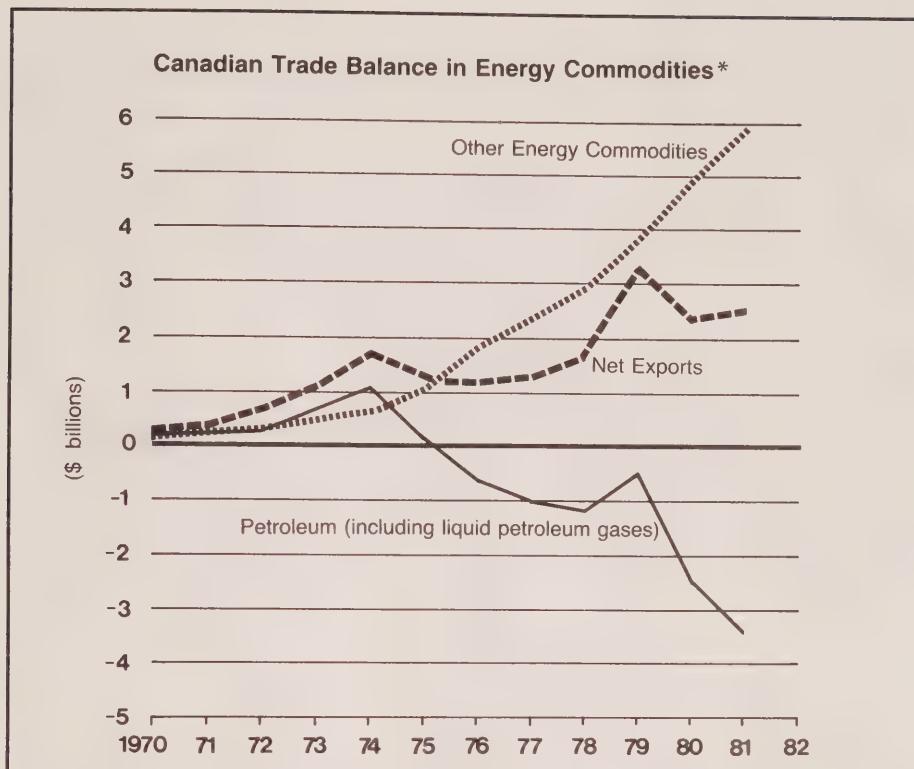
It seems prudent, given the uncertainties, to proceed in a manner that assumes the recent world price lull will be temporary. The cost of proceeding too quickly to reduce oil consumption seems insignificant when compared to the cost of having failed to do so, only to have oil prices rise again. In many cases, of course, there is no cost at all to oil conservation and substitution efforts.

For planning purposes, and for purposes of producing the domestic price and revenue sharing forecasts presented in this *Update*, it is necessary to make some assumption about the future course of international oil prices. While a large band of uncertainty must clearly surround any forecast, it is assumed that world prices will remain constant in nominal terms until the end of 1983, and then rise 2 per cent a year in real terms. Such a development would represent a significant erosion of world prices from their 1981 peak. Oil prices at the end of 1983 would be at the same level in real terms as they were at the end of 1979. By 1986, the nominal price of oil is assumed to be \$355 per cubic metre (\$56.50 per barrel). This represents a real oil price of \$122 per cubic metre (\$19.40 per barrel) in 1974 dollars.



Domestic supply-demand developments to date

Canada has been a net exporter of energy since 1969. Revenues from exports of natural gas, electricity and other energy forms have far exceeded our payments for imported oil. The overall balance improved by \$73 million in 1981, despite an \$803 million increase in the cost of net oil imports.



Source: Statistics Canada, Exports—Merchandise Trade, Annual, Cat. 65-202, and Imports—Merchandise Trade, Annual Cat. 65-203.

* Statistics Canada includes in the definition category "uranium elements and isotopes," items with both energy and non-energy uses. Rather than attempt a breakdown between uses, the entire group has been excluded for purposes of this table. Had they been included, they would have raised the net trade balance by \$657 million, or to \$3,059 million, in 1981.

Canada's energy problem is oil. The National Energy Program seeks to reverse the trend towards growing oil imports. This will not be an easy job, for conventional oil reserves in western Canada continue to decline. A substantial oil-resource base remains in the form of conventional oil and oil sands, but new supply sources take time to develop. There is no short-term supply solution to the oil import problem. Instead, heavy stress must be placed on cutting rapidly the demand for oil. This will buy the time needed to bring on the new supplies that Canada will need to achieve sustained energy security.

The goal is independence from the world oil market by 1990. To achieve this goal, the NEP provides a clear market signal through rising oil prices, and more modest prices for other energy commodities. It provides a substantial number of direct measures to help Canadians use less energy, and switch off oil to fuels that we have in relative abundance. It encourages the oil industry to find and develop new domestic sources of supply.

Oil demand

The NEP makes a massive, unprecedented commitment to improve the demand side of the Canadian energy equation. The demand management programs are working.

While total energy demand grew by 1.4 per cent in 1980, it fell by over 2 per cent in 1981. This occurred in spite of the fact that the Canadian economy grew faster in 1981 than in 1980. While about one third of this decline reflected climatic trends, most is attributable to the effect of energy policies.

Primary Energy Demand
(Petajoules)

	1979	1980		1981†	
		Levels	% change	Levels	% change
Oil	4,058	3,963	-2.3	3,697	-6.7
Gas	1,734	1,746	0.7	1,716	-1.7
LPGs*	91	99	8.8	105	6.1
Coal and Coke	876	928	5.9	945	1.8
Primary Electricity...	2,590	2,723	5.1	2,795	2.6
Other	325	348	7.1	348	-
Total Demand	9,674	9,807	1.4	9,606	-2.1
Economic growth (change in real GNE)			0.0		+3.0

* Liquefied petroleum gases, such as propane.

† EMR estimate.

Source: Statistics Canada, Quarterly Report on Energy Supply—Demand in Canada, Quarterly, Cat. 57-003.

Refinery Oil Product Demand
Percentage Changes in 1981

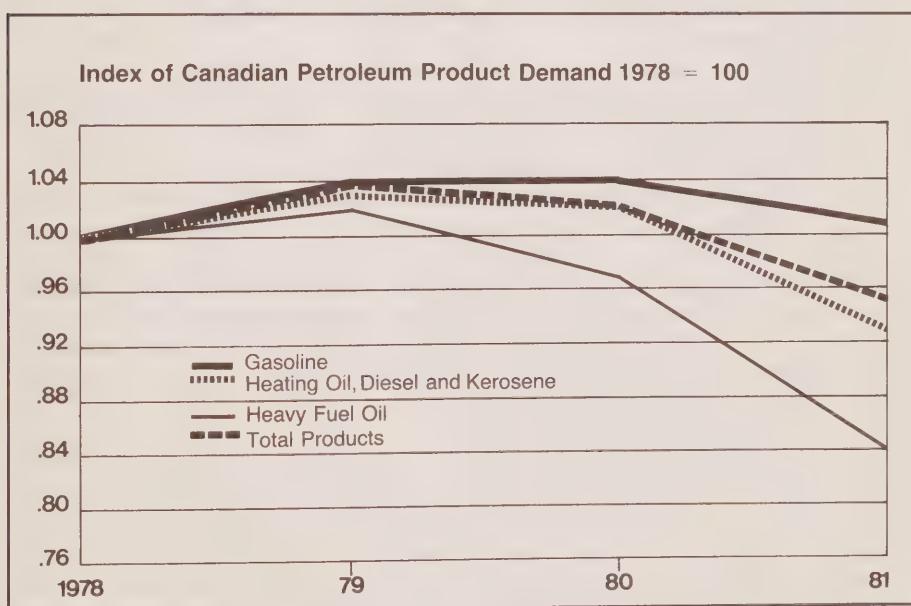
	Canada	Atlantic	Quebec	Ontario	Prairies	B.C., Yukon	NWT.
Motor gasoline	-3.3	-5.3	-6.0	-3.3	-1.0	-0.5	
Light fuel oil	-17.4	-13.8	-16.2	-20.2	-18.7	-16.6	
Heavy fuel oil	-13.7	-26.5	-13.3	-8.6	+1.0	+14.9	
Total products	-6.7	-15.5	-8.9	-5.9	-2.3	-0.6	

Source: Statistics Canada, Refined Petroleum Products, Monthly, Cat. 45-004.

Happily, the decline was most pronounced in the case of crude oil demand, which dropped by 7 per cent in 1981. Motor gasoline demand fell by 3.3 per cent in 1981. Light and heavy fuel oil demand fell by 17.4 and 13.7 per cent respectively.

The extent of the growing swing away from oil is indicated by the number of applications for grants available under the Canada Oil Substitution Program. Nearly 200,000 oil-using households have taken advantage of federal aid to switch off oil. The rate of conversions is expected to increase sharply in 1982, particularly for natural gas and renewable energy.

Natural gas demand fell by 1.7 per cent in 1981. Average household use of gas has been falling by about 2 per cent per year since 1977. The overall decline in gas use would have been more severe in the absence of the large number of conversions off oil to natural gas. Conversions to electricity exceeded expectations. Electricity demand increased by about 1.3 per cent as electricity increased its market share. Again conservation of electricity has had a moderating effect on demand. Canada is ahead of the schedule set out in October 1980 for moderation of energy use, and reduction of oil demand. Oil consumption in 1982 is now projected to be some 36,000 cubic metres (228 thousand barrels) per day lower than in 1979, when oil demand peaked in Canada, and some 10 per cent lower than in 1980.



Oil supply

Canada's oil supply outlook has changed considerably since the NEP was announced. On the positive side, the results of oil exploration and delineation on the Canada Lands continue to be highly promising.

Although there was a great deal of frontier exploration activity going on in 1980, the NEP as published in 1980, did not assume any oil production from the offshore or the North in the 1980s. Since that time, further significant oil shows have been recorded on the Canada Lands. Perhaps more importantly, delineation drilling at Hibernia over the past year and a half has established proven reserves that appear large enough to enable viable development.

In the northern frontier there have been three new oil discoveries in the Arctic Islands and one new discovery in the Beaufort Sea - Mackenzie Delta area since October 1980. The level of exploration activity has remained high and the results look promising, but there has not yet been sufficient delineation drilling to prove up reserves at these discoveries.

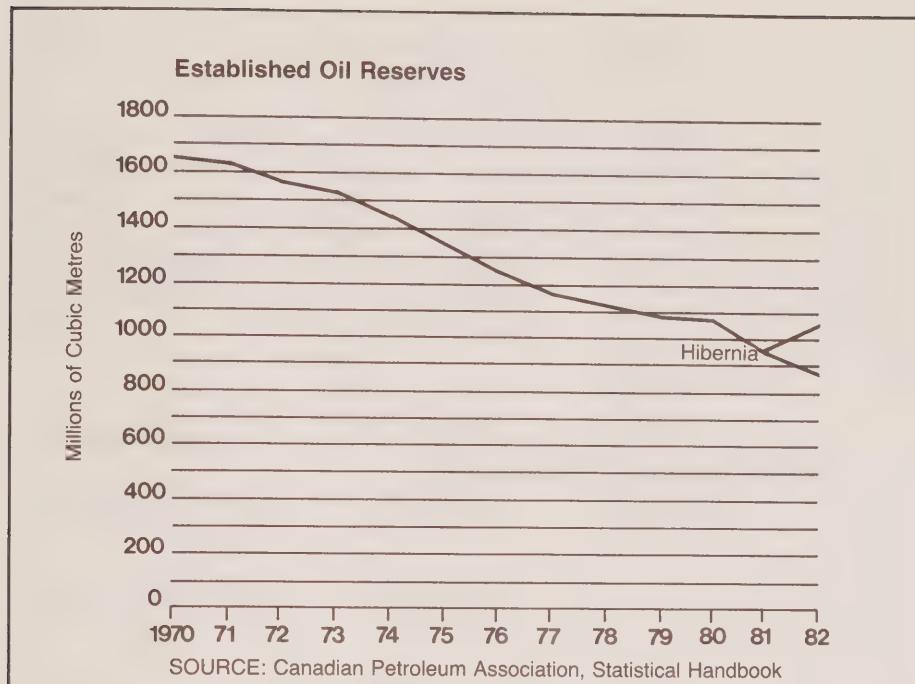
Two major oil sands projects were victims of the uncertainty about the world oil price that was discussed earlier in this chapter. Cost estimates for the Alsands and Cold Lake projects have more than doubled since 1979. These higher costs, together with higher forecasts of debt carrying costs and the prospect of more moderate world price increases, impaired the perceived economic viability of the Alsands project. Thus, despite a generous offer by the federal and Alberta governments, the Alsands sponsors decided on April 30, 1982 not to proceed with the project.

There was also a faltering of industry exploration and development efforts in the western provinces. This region has major resource potential. It will be looked to for increasing amounts of new conventional oil to improve Canada's supply-demand balance. Yet drilling activity fell in 1981.

A number of factors have contributed to this trend. First, the industry has had a difficult year and a half. The new agreements with the producing provinces have created the basis for stability in the domestic environment. The price and fiscal regime for new oil is attractive. Adjustments made by both levels of government have provided additional cash and incentives. However, the industry has been asked to adapt to a much-changed system of incentives, and it found itself—as in the mid 1970s—in the middle of a federal-provincial dispute. These two factors have clearly been unsettling.

One of the major reasons for the decline of effort is the fact that many of the most aggressive explorers, the smaller companies, found themselves in difficult financial straits in 1981. Lower than expected gas sales, a heavy debt burden, a weak equity market, and new taxes, meant that many firms had far less money available to them than they had expected. This weakening of the smaller companies' capacity is of special concern in view of the fact that these firms have made a high percentage of the new oil discoveries.

In addition, the industry in Canada as elsewhere has not escaped the uncertainties about demand for its product that beset every industry in difficult



economic times. This has particularly affected those companies with heavy involvement in the downstream. However, the shut-in problem, addressed in Chapter 4, affects most oil-producing companies.

In the case of natural gas, it had been widely expected that the drilling surge in the late 1970s would not likely be maintained beyond 1980, because of a growing inventory of unsold reserves. According to industry sources, exploratory gas well completions fell by 18 per cent in 1981; development wells by 27 per cent. This was a major reversal of the situation in 1980, where overall gas drilling had risen by 24 per cent over 1979 levels. Chapter 4 discusses the particular problems of the gas industry.

In the case of oil, the situation was more complex, and differed among provinces. In Alberta, industry estimates indicate that an overall reduction of 9 per cent in oil well completions was a mixture of a 13 per cent rise in exploratory well completions and a decline of 14 per cent in development wells. In Saskatchewan, the trend was more negative. Total oil well completions fell by 48 per cent, with exploration and development completions falling by 41 per cent and 58 per cent respectively.

In Manitoba, both exploration and development drilling increased from a modest base. Total completions were up fivefold. In British Columbia, the trend was mixed, with development drilling up very slightly, but exploration completions halved, again from a small base.

Many of the factors inhibiting industry activity have been resolved. Alberta's generous changes to its royalty system should provide a strong stimulus. Saskatchewan, too, is expected to provide some relief.

Oil exploration should increase once again as companies move to take advantage of the price and fiscal incentives now available. Gas exploration is likely to rebound less quickly because the underlying problem, weak markets, will take time to resolve. Clearly, however, a weak exploration effort in western Canada is a concern. Even if there is sufficient exploration to meet our oil goals, the Government of Canada regards the gas industry and the drilling activity it supports as a vital part of the economy. This *Update* contains measures that should help to accelerate the restoration of drilling activity.

Oil supply-demand balances

In terms of the overall balance, Canada is doing better so far than had been anticipated in the 1980 NEP forecast.

The accompanying table presents data for oil demand, supply and imports for the period 1979 to 1982. The moderation in oil demand beginning in late 1980 is apparent. Demand fell in 1981 and is expected to fall again in 1982. Oil imports fell in 1981 and should fall in 1982. The overall message is clear. Imports, once expected to rise dramatically, are now likely to remain below 1980 levels in the coming years.

Canada's Oil Imports
(thousands of cubic metres per day)

	1979	1980	1981	1982 Forecasts
Demand.....	290	284	265	246-256
Production.....	256	244	220	213-215
Adjustments, and stock change	4	2	-4	-7
Net oil imports*	38	42	41	26-34
	(239)	(263)	(260)	(164-214)
Net oil imports under IEA definition†	11	18	19	3-11

*Numbers in parentheses are in thousands of barrels a day.

†Includes propane, butane and ethane from gas plants.

Chapter 3

PROGRAM UPDATE

The National Energy Program includes a number of programs designed to reduce quickly our oil imports. The Program deals in a special way with the energy problems and opportunities of two of Canada's regions, Atlantic Canada and the North. It also establishes a framework to achieve an increase in the extent to which Canadians own and control their oil and gas sectors. Finally it recognizes and deals with problems and issues arising in the downstream oil industry as a result of the dramatic reduction of oil demand foreseen.

As will be seen, a great deal has been accomplished in the last year and a half. The following sections review the principal initiatives announced in the NEP, the achievements to date, and the challenges still to be met.

The National Energy Legislative Program

The ambitious and sweeping nature of the National Energy Program requires a great effort by the Parliament of Canada to overhaul and modernize the nation's energy legislation.

Since the program began, the Government of Canada has sponsored 14 new bills for scrutiny and decision by Parliament. While many energy bills remain under consideration, many bills are already law.

<i>Bill</i>	<i>Title</i>	<i>Status in Parliament</i>
C-75	An Act respecting a home insulation program for certain provinces	Passed by Parliament June 30, 1981
C-76	An Act respecting a home insulation program for certain Maritime Provinces in Canada	Passed by Parliament June 30, 1981
C-77	An Act respecting oil conservation and the substitution for oil of other energy sources	Passed by Parliament June 30, 1981
C-60	An Act to amend the <i>NEB Act</i>	Passed by Parliament December 18, 1981
C-87	An Act to amend the <i>NEB Act</i> (No. 2)	Passed by Parliament December 18, 1981
C-48	An Act to regulate oil and gas interests in Canada Lands and to amend the <i>Oil and Gas Production and Conservation Act</i>	Passed by Parliament December 18, 1981
C-101	An Act to amend the <i>Petro-Canada Act</i>	Under consideration in the Senate
C-102	An Act to amend the <i>Department of Energy, Mines and Resources Act</i>	Under consideration in the House

C-103	An Act to amend the <i>Petroleum Administration Act</i> and to enact provisions related thereto	Under consideration in House Committee
C-104	An Act respecting petroleum incentives and Canadian ownership and control determination and to amend the <i>Foreign Investment Review Act</i>	Under consideration in the House
C-105	An Act to amend the <i>Canada Business Corporation Act</i>	Under consideration in the Senate
C-106	An Act respecting energy monitoring and to amend the <i>Energy Supplies Emergency Act, 1979</i> and the <i>Oil Substitution and Conservation Act</i>	Under consideration in the Senate
C-107	An Act respecting motor vehicle fuel consumption standards	Under consideration in the House
C-108	An Act to amend the <i>National Energy Board Act (No. 3)</i>	Under consideration in House Committee

In the proceedings on these bills, many Members of Parliament have contributed to the NEP by bringing their knowledge and experience to bear in debate, and by suggesting amendments. Over the last 18 months, there have been 430 speeches in the House of Commons on energy policy.

Also, the Government established a special Parliamentary Task Force on Alternative Energy and Oil Substitution. The various Committees of the House of Commons and the Senate have also played an important role.

Each one of these energy-related bills has been reviewed carefully by a Parliamentary Committee. Energy policy generally has been the subject of deliberation in the House of Commons' National Resources Committee, the Energy Legislation Com-

mittee, the Finance, Trade and Economic Affairs Committee and the Public Accounts Committee and Northern Pipelines Committee. The Government of Canada has made nearly 100 amendments to its Bills, in response to concerns and suggestions advanced in the course of Parliamentary review.

The Government of Canada is held accountable to the citizenry of Canada through the proceedings of Parliament. Since the NEP started, 718 questions about energy policy have been answered during the daily Question Periods. Another 111 questions from M.P.s have been answered in writing.

The National Energy Program began as proposals—it is now a series of decisions by the Parliament of Canada.

Substitution away from oil

The goal of the Government of Canada is to reduce the use of oil in each of the residential, commercial and industrial sectors in every province to no more than 10 per cent of the total energy used in those sectors. To this end, a number of programs were announced in October 1980 designed to promote a rapid, once-and-for-all shift from oil towards gas, electricity, renewable energy and coal. This would mean that by 1990 the only energy use for oil in most parts of Canada would be in the transportation sector.

Conservation and Renewable Energy Offices

These local offices of the Department of Energy, Mines and Resources can help the consumer with information and advice on many of the programs described in this book. (For offices without toll-free numbers, call collect.)

NEWFOUNDLAND

Box 65, Atlantic Place
215 Water Street, 7th Floor
St. John's, Nfld. A1C 6C9
(709) 772-5353

MANITOBA

Main Floor
112-110 Osborne Street S.
Winnipeg, Man. R3L 1Y5
(204) 949-4266
1-800-542-8928

NOVA SCOTIA

Bank of Montreal Tower
5151 George Street
5th Floor, Suite 503
Halifax, N.S. B3J 1M5
(902) 426-8600

SASKATCHEWAN

S.J. Cohen Building, Suite 706
119-4th Avenue S.
Saskatoon, Sask. S7K 5X2
(306) 665-4532
1-800-667-9719

PRINCE EDWARD ISLAND

Waterfront Shopping Centre
98 Water Street
P.O. Box 234
Summerside, P.E.I. C1N 4N6
(902) 436-7283

ALBERTA

Grandin Park Plaza
2nd Floor, Room 200
22 Sir Winston Churchill Avenue
St. Albert, Alta. T8N 1B4
(403) 420-4085
1-800-222-6477

NEW BRUNSWICK

835 Champlain Street
Dieppe, N.B. E1A 1P6
(506) 388-6070
1-800-322-3908

BRITISH COLUMBIA

Marlborough Mall
5021 Kingsway
3rd Floor, Room 320
Burnaby, B.C. V5H 2E5
(604) 524-7222
112-800-663-1280

QUÉBEC

605 Dorchester Blvd. W.
Ground Floor
Montreal, Québec H3B 1P4
(514) 283-5632
1-800-361-8025

NORTHWEST TERRITORIES

Precambrian Building
4922-52nd Street
or P.O. Box 68
Yellowknife, N.W.T. X1A 2N1
(403) 920-8476
Zenith 2828

ONTARIO

2242 Lakeshore Blvd. W.
Toronto, Ontario M8V 1A5
(416) 252-5866
1-800-268-2207

YUKON

2078 Second Avenue
Whitehorse, Yukon Y1A 1B1
(403) 668-2828

Canada Oil Substitution Program (COSP)

The conversion of oil-based heating systems to alternative fuels is a central element in Canada's off-oil strategy. Over 155,000 Canadian households or businesses have benefited from federal grants of up to \$800 for gas and electric conversions, at a cost to the Government of Canada of over \$105 million. More than forty gas and electric utilities are providing administrative support and, in many cases, financial reinforcement for the COSP program, and a streamlined delivery system is now in place. Nearly 600,000 cubic metres (4 million barrels) of oil have already been saved through the conversions funded to date.

Almost 50,000 Canadian households have applied for similar assistance for converting to renewable energy sources or for enhanced conservation investments. This number is much higher than originally expected, and indicates the great interest Canadians have in these clean, enduring energy sources. This demand has produced a burgeoning conservation and renewable energy industry, and provided many new jobs.

As in any novel, complex program, there have been some start-up delays. The Government is moving quickly to satisfy the high demand for this program, and the initial backlog of applications is being rapidly eliminated. To accelerate delivery of these programs, the Government has opened 12 regional Conservation and Renewable Energy Offices. These offices, which have been in operation since May 1981, are equipped to provide a full range of services to the public on energy options and programs. In addition to administering the conservation and renewables portion of COSP, and other energy programs, they will provide valuable advice to the Government on specific regional energy concerns.

Federal building conversions

The Government is determined to accelerate the pace of federal building conversions both as a means of saving taxpayers' dollars, and as a demonstration of its commitment to off-oil objectives. The target is to cut fuel oil consumption by 40 per cent in this decade.

To meet this goal, the Government has committed \$25.5 million to fund studies of potential conversion options, and the capital costs of the projects themselves. In 1981-82, \$1.2 million was provided to assist 15 projects, resulting in the displacement of 21,800 cubic metres (4.8 million gallons) of oil.

Gas pipeline and distribution expansion

Some of the major events and decisions taken fostering the expansion of the pipeline and distribution network are as follows.

- The National Energy Board has given regulatory approval for the Trans Québec and Maritimes pipeline. It is now expected that Trois-Rivières will receive

gas service in November 1982 and Québec City in the spring of 1983. Developments with regard to the Maritime portion of the pipeline are dealt with in Chapter 4.

- The Government of Alberta has agreed to contribute part of the costs of expanding the gas transmission and distribution network. Under the terms of the Canada-Alberta Energy Agreement, Alberta will contribute Market-Development Incentives Payments for use in opening up new gas markets east of Alberta. Programs are now in place to use these funds to defray some of the costs of providing assistance to distributors (see DSEP program below).
- A policy of uniform wholesale gas prices from Toronto through to Halifax has been implemented. The policy provides for the wholesale price of gas to be set at about two thirds of the price of crude oil to eastern Canadian consumers. This attractive gas price provides consumers with a major incentive to convert off oil, and helps to establish the demand necessary for the expansion of the gas infrastructure.
- A total of up to \$60 million has been allocated in 1982-83 to the Distribution System Expansion Program (DSEP). This program provides grants to utilities in expanding into new market areas. Almost 400 applications have been received since the program was announced in March 1982. In the next year alone, this program will make gas service available to an additional 52,000 households and firms, and contribute to a saving of 130,000 cubic metres (29 million gallons) of fuel oil.
- The Government has announced its intention to introduce a program of providing developmental prices to gas distributors, effective November 1, 1982. Under this program, distributors of gas in Québec and the Maritimes would receive a limited holiday from certain charges until gas volumes were sufficient to utilize more completely the initial capital facilities.

These federal initiatives for the development of domestic gas markets will be of great benefit to gas producers. Moreover, the terms of the Canada-Alberta Energy Agreement protect producers from the cost and risk of transmission systems to expand domestic markets. The Agreement also guarantees the gas producer full access to potential increases in the export price.

The federal government's goal of expanding domestic gas sales is shared by provincial governments. British Columbia, Ontario, Québec and Saskatchewan have all announced important initiatives directed towards increased and improved gas distribution. The Government hopes that the Government of Québec will, at an early date, fulfil its commitment to remove the sales tax on natural gas.

While these initiatives have, for the most part, occurred only very recently, their impact is already being felt. The number of residential customers using natural gas increased by over 5 per cent in 1981, with total gas sales in this market increasing by 2 per cent. This lower level of increase in gas sales

reflects the continued impact of conservation, which has reduced gas sales per residential customer in each of the last seven years. Growth was especially impressive in some markets, with gas sales to residential customers increasing by over 13 per cent in Québec.

Electricity

Electricity is a key element of Canadian energy policy as an alternative to oil, and as an important source of export revenue to offset the cost of oil imports. Almost 72,000 conversions from oil to electric heating have received assistance under the COSP program, almost as many as are converting to gas. While the bulk of these conversions have been to conventional baseboard heating, there is increasing interest in several new energy-efficient technologies such as heat pumps and electric hybrid heating systems. Electricity will continue to be a formidable competitor in many parts of the country, particularly where improved insulation reduces annual heating loads.

Federal support for the electrical supply industry is continuing. The research and development activities of the Canadian Electrical Association are being assisted through Government grants. Almost \$170 million will be spent this year on nuclear energy research. About \$120 million in loans has already been provided to Manitoba for expanding the Nelson River transmission system, and a further \$73 million will be advanced in the period to 1991. Special assistance is being made available for particular projects, such as the Point Lepreau nuclear reactor, which contribute to our off-oil objectives and our export earnings.

Alternatives to gasoline

Propane. The benefits of converting to propane are becoming readily apparent to Canadians. Over 6,500 applications have been received for assistance under the Propane Vehicle Grant Program in its first year of operation. Interest in this program, which provides grants of \$400 towards the conversion of vehicles to propane, has increased markedly in the last few months. It is expected that between 12,000 and 15,000 conversions will be funded this year. The program goal of 100,000 propane-powered vehicles by 1985 should easily be met; this will cut oil consumption by over 2,065 cubic metres (13,000 barrels) per day. The Government of Canada converted almost 600 of its own vehicles to propane in the last year, and is well on the way to reaching its target of 8,000 converted vehicles by 1985.

The private sector is responding to the opportunities presented by propane. The number of propane fuel outlets across the country rose from 350 to 935 last year alone. Companies with active plans in this field now include Imperial Oil, Sunoco, Husky, Canadian Tire and several propane distributors.

Infrastructure in Ontario in particular is expanding rapidly, and there are already as many propane outlets in this province as there are outlets for diesel fuel. Several provinces and territories have adopted complementary propane initiatives. British Columbia, Saskatchewan, Ontario and the Northwest Territories have removed their road tax on propane, while Manitoba and Saskatchewan have reduced their taxes below the level of gasoline. British Columbia provides tax relief for propane conversion kits, while Ontario has no sales tax on propane vehicles.

Much more can and will be done. The amount of propane that Canada exports is equivalent to almost 6,400 cubic metres (40,000 barrels) of oil per day. The Government of Canada is determined to divert a large portion of these exports to domestic users. This will require concerted efforts by producers, distributors and the provincial and federal governments. This year the federal government is funding \$2 million in studies to assess the potential markets for propane across the country. Applications in the agricultural sector show the promise of being particularly attractive. In the Northwest Territories and the Yukon, these studies are being jointly funded with the territorial governments and will explore the feasibility of providing both propane and natural gas infrastructure to northern communities.

Compressed Natural Gas (CNG). Interest in compressed natural gas as a motor vehicle fuel is also growing, and this product is now sold at stations in Vancouver and Calgary. Stations in Toronto, Edmonton and Montréal are expected to be opened this year. In order to facilitate the expansion of this market, the federal government has allocated an initial \$1.3 million to assist the conversion of some 1,500 vehicles to CNG. This vehicle conversion program will generate valuable information on the feasibility and performance of CNG as a vehicle fuel, and it will provide an incentive to establish CNG fueling stations and infrastructure. There may be instances where some form of direct assistance to speed the establishment of fueling stations would be warranted, and the Government of Canada is prepared to consider requests in this regard.

Complementary research on the technical, economic and regulatory barriers to increased CNG usage are commanding a high priority in federal government's R&D effort. These initiatives will ensure an excellent start in the use of natural gas as a vehicle fuel. This represents a special opportunity for Canada.

Conservation initiatives

The determination to shift from oil to other fuels must be accompanied by efforts to conserve all forms of energy. Canadians are aware of this, and are acting accordingly, for both financial and ethical reasons. Witness, for example, the continuing decline in per-household use of natural gas. The National Energy Program takes the view that conservation provides the cleanest, most enduring, and—in many instances—the cheapest part of the solution to the oil problem of the 1980s and to an improvement of the basic energy balance.

The demand for all energy forms in Canada has been curbed significantly in response to higher energy prices, and the impact of federal and provincial conservation initiatives. This is encouraging but is no cause for a relaxation of efforts to promote more efficient energy usage. The challenge facing Canadians will be to sustain the rate of progress in improving energy efficiency as the country pulls out of the current period of reduced economic activity. This will require efforts towards eliminating the waste of energy, and a range of capital investments in energy conserving technologies.

During the 1970s, the federal government implemented a number of programs to assist conservation efforts, and further major initiatives were introduced in the National Energy Program. These measures were designed to help overcome the structural impediments, information barriers and financial constraints preventing conservation from reaching its true potential. The principal achievements to date, and the problem areas that must and will be overcome, are outlined below.

Canadian Home Insulation Program (CHIP)

The CHIP program is a cornerstone of the National Energy Program's conservation policy. Over 1.2 million Canadians have been provided with grants covering 100 per cent of insulation material costs up to \$350, and one third of labour costs up to \$150. The Government of Canada has invested almost \$460 million in this program so far.

The annual CHIP budget was increased to \$265 million annually under the National Energy Program. With the announcement on March 23, 1982 of an advancement in the eligibility date, about 80 per cent of Canadian residences are now eligible for assistance under the program. Residents of all houses and small apartments built in Newfoundland and the territories before January 1, 1977, and in other regions before January 1, 1971, are now eligible for CHIP assistance.

The Government is working constantly to improve the delivery of the CHIP program, and to prevent abuse. It is now mandatory for insulation contractors to receive a certificate from the Canadian General Standards Board before being eligible for contracted work under CHIP. The inspection process for preventing abuse has been revised in order to provide an "early warning" of fraudulent activities, and a pilot program has been launched investigating ways of further improving the system.

The emission of formaldehyde gas from urea formaldehyde foam insulation (UFFI) is of serious concern in Canada and many other countries. The use of UFFI as an insulation material predicated the CHIP program; over one half of the homes suspected of having this problem did not receive Government assistance to install this insulation.

Canada was the first country in the world to ban the use of UFFI. It responded to the difficulties of those who have insulated with UFFI with a number of actions. The federal government will provide free technical and testing

assistance to homeowners. It is the only government in the world that also provides financial assistance to homeowners where formaldehyde gas from UFFI is deemed to be a potential health hazard. This will cost an estimated \$125 million in 1982-83. It is also undertaking a detailed review of the system for approving insulation materials. The Government hopes that provincial governments, which are responsible for housing standards, will also agree to assist homeowners with this problem.

While the large numbers of Canadians assisted through CHIP grants are indicative of the high level of interest in conservation investments, the participation rate needs to be improved. This will require a considerable increase in the rate of uptake in some regions, and among renters and landlords. A major evaluation of the CHIP program is underway, with the results expected by the end of this year. The result of this analysis will provide a more accurate measurement of the effectiveness of the conservation investments undertaken to date, and will provide the necessary information for improvements in the program.

Conservation in the federal government

The Government of Canada is determined to conserve energy within its own operations. Since 1975-76, the Government has reduced the amount of energy used by over 17.5 per cent, providing a cumulative saving to the taxpayer of over \$250 million. This exceeds considerably the original target of 10 per cent savings by 1985-86.

The federal government will improve on this record. Over \$120 million has been allocated over five years to finance engineering studies of retrofit projects, and the capital costs of the projects themselves. Last year, 35 such projects involving an expenditure of \$6 million were funded, and the budget will more than double this year. Payback periods on assisted projects were as short as two years, giving vivid demonstration of the dollar savings possible through sensible conservation initiatives.

Conservation in new housing

While initiatives to upgrade the thermal efficiencies of the existing housing stock are essential for our conservation effort, we must not lose sight of the need to ensure that new housing construction is appropriate for an energy-concerned world. It is much more efficient to build in good conservation practices from the start, than to retrofit. Canada is acknowledged as a world leader in the technology for the design and construction of super-efficient, low-energy buildings, but there are not enough of these buildings currently under construction.

The Government will spend \$6 million in order to support construction of 300 to 500 super energy efficient housing units in Canada. Between 30 and

50 of these units will be built this year, with construction of the remainder commencing in the next construction season. The program will provide a clear demonstration of the economics of conservation to both builders and homebuyers, as well as developing capabilities in the industry. These buildings' energy consumption will be only about 25 per cent of that for conventional homes. This could sow the seeds for a revolution in Canadian housing construction techniques. The technology will be applicable to other countries as well.

Work is now underway on the development of advanced building standards for houses in Arctic communities and it is expected that these will be available for public review early in 1983. The federal government will ensure that all federally supported construction conforms to these standards, and hopes that the territorial governments will apply similar housing requirements.

In addition to these measures, Canada has implemented an effective program of energy labelling for all new major household appliances.

Industrial and commercial sectors

The federal government works closely with industry in increasing the efficiency of energy use in Canadian business. The results of this cooperative effort have been impressive. Since 1972, energy consumption per unit of output in the industrial sector has dropped by over 15 per cent; this is equivalent to an energy saving in 1981 alone of 8 million cubic metres (50 million barrels) of oil.

This good energy conservation record has been assisted by a variety of federal initiatives, including taxation measures, information programs, and direct financial assistance. The response of industry has been excellent; it is

Working with Industry for Energy Conservation

The following federal initiatives are assisting industry in increasing energy efficiency.

- An accelerated capital cost allowance is available for specific assets that save energy or utilize non-oil energy sources.
- Sixteen Industrial Energy Conservation Task Forces have been set up to increase the awareness of management and employees of the operating cost savings possible through appropriate energy management techniques. Over 50 technical and executive officer seminars have already been sponsored under this program and another 60 are being planned.
- A similar Commercial Task Force pro-

gram is underway beginning with hospitals and the hospitality industry.

- Over \$40 million will be spent by the Federal Government over the next three years in support of the National Energy Audit Program. This joint federal-provincial program provides an on-site energy inspection service to industrial and commercial organizations, churches and public institutions. Funds are provided for up to 90 per cent of the costs of consultant studies to plan energy conservation projects. The audit service is carried out using special "Energy Bus" vehicles equipped with a computer system and sophisticated energy measuring devices, and staffed by engineers and trained technicians.

estimated that companies participating in the joint government-industry seminars account for over 80 per cent of energy consumption in the manufacturing sector. Many of these initiatives, including the popular Energy Bus Program, have won Canada international recognition, and have been copied by several European countries.

Similar initiatives to those applying to industry are now being implemented in the commercial sector, including the establishment of voluntary energy conservation task forces.

Transportation sector

The savings possible through the development of more energy efficient automobiles are immense. In 1990, it is estimated that improved energy performance in this sector could save almost 47,700 cubic metres (300,000 barrels) of oil daily, relative to the consumption that would result from using automobiles at 1979 standards of efficiency.

To this end, the *Motor Vehicle Fuels Consumption Standards Bill* has been introduced in Parliament with passage expected early this summer. This Act provides for a voluntary system for monitoring progress towards an energy-efficient transportation sector. The Minister of Energy, Mines and Resources and the Minister of Transport will report annually on progress in this regard, comparing Canada's performance to that of other countries. Mileage standards could if necessary be made mandatory after 1985, when the current voluntary program expires. However, it is not expected that such mandatory standards will be necessary.

The Government is encouraged to note the progress that has been made in securing the cooperation of industrial and consumer groups for the program. The Motor Vehicles Manufacturing Association (MVMA) has agreed to supply the data needed to develop appropriate standards. The Government expects to begin discussions shortly with the MVMA and the Automobile Importers of Canada about the information that will be required. The Canadian Automobile Association and the Canadian Trucking Association have proved to be willing participants in projects aimed at providing user information.

Municipalities

The National Energy Program announced the Government's intention to develop a Municipal Energy Management Program, to aid conservation efforts by municipal governments. The Government has decided not to proceed with this program. Municipal affairs are a provincial responsibility in Canada; the federal government believes that it would be more appropriate for provinces to launch specific initiatives designed to increase energy efficiency in municipalities.

Several federal government energy programs will, however, assist Canadian municipalities. The services under the National Energy Audit Program are available for schools and hospitals. Commercial task forces have already been set up providing valuable information services to hospitals, and the Government intends to extend the program to cover other municipal institutions. The Building Technology Support Program supports intensive research into energy use and conservation in buildings, and the results of this research will be made freely available to Canadian municipalities.

Research and development

The National Energy Program recognizes the central role of R&D in both increasing Canada's long-term energy options, and in solving the energy problems of today. Three new priorities for an increased effort were established.

- Alternatives to gasoline
- Increased efficiency of energy use
- New energy sources.

Since October 1980 it has become apparent that increased priority should also be assigned to the development of new technologies and processes to enhance oil production from the western basin and from new discoveries in the Canada Lands.

In 1982-83, the Government will spend \$75 million on new research initiatives launched since the National Energy Program. In addition, the Government will continue to support research into conventional energy technologies such as nuclear power, and almost \$290 million will be spent on energy research in total. This represents an increase in funding of over 90 per cent in four years.

Federal Crown corporations such as Petro-Canada and Canertech — the new corporation responsible for commercializing conservation and renewable energy technologies — are working closely with private firms to assist in the achievement of these new objectives. However, it is also hoped that the expanded federal efforts in energy research and development, which benefit private firms in Canada, will spur these companies to increase their own research and development activity and develop new high technology Canadian industries.

In its management of the Canada Lands, the Government of Canada will be especially concerned to see an ambitious R&D effort to address the technical challenges unique to this region. In negotiating exploration agreements, the Canada Oil and Gas Land Administration will press for explicit commitments by private companies in this regard.

Several provinces are also engaged in extensive R&D efforts. The Government of Alberta, for example, funds a major research program (AOSTRA) focussed on the challenges of oil sands and heavy oil recovery. The Government of Ontario supports important research in alternative liquid fuels,

with increasing emphasis on hydrogen developments. Electrical utilities in British Columbia, Saskatchewan, Ontario and Québec undertake major programs geared to improving efficiency in the generation, transmission, distribution and use of electricity.

Energy Research and Development in the Federal Government

New energy sources

Energy sources that already provide Canada with important alternatives to oil and gas—nuclear energy, coal and renewable energy sources such as solar, wind and biomass—are a major focus of federal research and development efforts under the National Energy Program. One new technology called the fluidized-bed combustion process, is under study in Prince Edward Island, a province highly dependent on imported oil. It is a new and versatile kind of furnace capable of burning less desirable fuels, including municipal waste as well as coal. It has the additional advantage of eliminating up to 90 per cent of the sulphur dioxide and nitrogen oxide emissions that normally occur when coal is burned.

In addition, a new large-scale demonstration of Canada's vertical axis "eggbeater" wind-turbine technology is underway. Under the \$20 million Aeolus project in Québec, Canadian industry will construct a wind turbine over 100 metres high, which will be capable of generating up to 3.8 megawatts of electrical power directly into the Hydro-Québec grid.

Increased energy efficiency

A good example of the benefits of energy research and development on energy efficiency is in the building sector. Consumers benefit from a new building code that establishes standards of energy efficiency for new homes, and from new technology demonstrated in research efforts to build super energy efficient houses. Consumers have also benefited from the development of versatile district heating systems that run on local energy sources—coal in Tumbler Ridge, British Columbia, waste wood in Chapleau in northern Ontario and waste heat from diesel generators in the Îles-de-la-Madeleine.

In addition, industry efforts to undertake high risk investment to increase energy efficiency are supported by federal funds. Among the results have been processes for

generating power from the burning of solid municipal wastes, demonstrated by a plant in Hamilton, Ontario; reduced energy use in chrome plating and paper making; the development of ultra high-efficiency gas-fired hot water heaters; and the development of flight operating equipment that increases aircraft fuel efficiency.

Oil and gas

New processes and technology are needed to ensure that Canadians can obtain and use as much as possible of the remaining light and medium crude oil lying in old fields in western Canada. Within the decade, production of conventional oil from western Canada will be greatly reduced unless large-scale enhanced recovery is undertaken. Pricing and fiscal structures established by governments provide strong commercial incentive for these developments. As well, the Government of Canada is providing direct funding to develop the new technologies required to fully realize this very important oil potential.

Considerable progress is also being made towards increasing the amount of useable fuel that can be refined from crude oil. One outstanding accomplishment of energy research and development in this area is the development of a novel hydrocracking process which produces 10 to 15 per cent higher distillate yields than the conventional coking process. The commercial testing of this process, developed by Government of Canada scientists is proceeding with the construction of Petro-Canada's 795 cubic metres (5,000 barrels) per day demonstration plant in Montréal. If successful, this process would make a major contribution to self-sufficiency by increasing the attractiveness of upgrading Canada's major reserves of heavy crude oil into more usable crude.

The technological challenges related to exploration and production of oil and gas in the often hostile but fragile environments of

the Canadian Arctic and offshore regions are also formidable. At the same time, great opportunities exist for the development of Canadian technical expertise and innovative technology related to the design of commercial oil and gas production and transportation systems.

Nuclear energy

Atomic Energy of Canada Limited is continuing a comprehensive R&D program aimed at securing the CANDU option for

Canada and over \$167 million has been allocated to this program in 1982-83. An increasing emphasis is being placed on research into the safe permanent disposal of radioactive material from CANDU fuel. Work is now focussing on the design of containers, with a life of some 300 to 500 years, that could be used to store the material for its hazardous life in stable rock formations in the Canadian Shield. An underground research laboratory has been established near Pinawa, Manitoba to undertake geotechnical research.

Renewable energy

The National Energy Program establishes a number of new programs designed to further the commercial use of renewable sources of energy. The following actions have been taken in the last 18 months.

- 821 solar hot water heating systems are being built in Canada with all units expected to be in use this summer. The Government will spend \$4.2 million on this program, which will provide valuable information on the operation of such systems in the Canadian environment.
- A Remote Community Demonstration Program has been announced and will shortly be operational. This program will provide \$24 million over four years to communities not presently connected to a main electrical grid or natural gas supply system. Funds will be available for studies of a variety of conservation and off-oil options using local energy sources, and for subsequent participation in identified viable projects. Renewable energy options—including low-head hydro and wood and wind technologies—will represent attractive alternatives in several areas.
- The Forest Industry Renewable Energy (FIRE) Program has been expanded to provide assistance to projects replacing petroleum with peat, and municipal and agricultural waste, as well as forest biomass. Cogeneration projects are also eligible. Over \$217 million has been allocated to this program over the next four years. To date, a total of 94 projects have been assisted through \$46 million in grants. Almost 922,000 cubic metres (5.8 million barrels) of oil per year will be saved when all of these projects are completed.
- Canertech has been established as a new energy Crown corporation with an initial funding of \$20 million. Several projects have been launched in the corporation's first year of existence. A joint venture with Nouveler, a Québec Crown corporation, has been formed to demonstrate the production of synthesis gas from wood. A pilot project involving the generation of ethanol from cellulose is in an advanced planning stage. Equity investments have been provided for businesses producing insulation material, power systems using advanced renewable technologies, and biomass-conversion technologies.

In addition to these initiatives, the federal government continues to fund a variety of demonstration projects of new technologies. Federal-Provincial Conservation and Renewable Energy Agreements have been reached with six provinces and both territories, providing for joint funding of projects submitted from the private sector. Over \$68 million has been allocated to this program over the next two years. In Prince Edward Island, the federal government delivers a similar program. The Province of Québec has not participated in the joint federal-provincial programs. In order that more progress can be made in demonstrating the many promising new technologies for reducing Québec's dependence on imported oil, the federal government is developing its own program in this area.

Energy Alternatives—The Report of the Special Committee on Alternative Energy and Oil Substitution to the Parliament of Canada

A Special Committee of the House of Commons, chaired by Thomas H. Lefebvre, was formed in May 1980 to study energy alternatives. Following an ambitious program of consultation, public hearings and study of alternative energy programs in other countries, the Committee published a comprehensive report that surveyed energy alternatives from a long-term perspective and made 65 specific recommendations. The Committee's report has stimulated much public discussion of important energy issues and brought to light many of the more complex aspects of the energy choices that we will face.

There is considerable harmony between the thrust of the Lefebvre study and the themes and initiatives in the National Energy Program. Many of the Committee's recommendations already are under implementation. For example, the Government of Canada has greatly increased funding for research and development in the areas of conservation, renewables and synthetic fuels.

Reflecting its long-term perspective, the Committee took the view that non-renewable hydrocarbon fuels should be regarded as an interim source of energy until such time as renewable and/or inexhaustible sources are able to meet most of our energy requirements. To this end, the Committee's recommendations were aimed at the promotion of renewable energy sources. The Committee emphasized the potential of hydrogen, produced electrolytically from water, as a major future energy source for Canada. In 1982-83, the federal govern-

ment will increase its expenditures on direct applied hydrogen research to \$5 million and this could double by 1984-85.

The Committee stressed the importance of maintaining a diversified energy system. This view is shared by the Government of Canada, which has encouraged the substitution of non-oil sources of energy in residential, commercial and industrial uses and is encouraging the use of propane and compressed natural gas (CNG) in vehicles as a substitute for conventional liquid fuels. The Government of Canada in cooperation with provincial governments and the private sector is devoting a considerable effort to developing alternative liquid fuels derived from natural gas and biomass feedstocks. This effort includes the funding of research and demonstration projects aimed at users of alcohol in vehicles with blends of gasoline. Special assistance is also available for the application of solar and other renewable forms of energy. Furthermore, a substantial effort is devoted to finding ways of reducing the environmental impacts associated with certain energy sources.

The Lefebvre Committee's detailed analysis of some thirty alternative energy sources and technologies provides a highly useful listing and analysis of options from which to choose the future path of our energy system. Included among these choices was a strong recommendation that conservation be viewed as an energy "source", perhaps one of our lowest cost options. Again, this is fully consistent with the NEP initiatives to help Canadians reduce their consumption of energy.

Some Conservation and Renewable Energy Projects

Over \$38 million in federal funding has been provided to 235 demonstration projects using renewable energy or conservation technologies. Some of the more notable achievements to date are:

- The first commercial demonstration of the Canadian fluidized-bed wood-gasifier in Hearst, Ontario has launched a technology having the potential to create a new industry.
- An aquaculture waste heat utilization pilot project supported in New Brunswick is now the most productive salmon and trout rearing facility in Canada. This technology is applicable across the country.
- The demonstration of air infiltration testing and sealing techniques in Manitoba has assisted a company in selling over thirty franchises to Canadian and U.S. firms. The technology provides the means for achieving energy savings of up to 40 per cent in residential units.
- The first demonstration in Canada of a coupled wind-diesel electrical generation system at a site near Sudbury, Ontario is now operational. This technology shows great promise for application in several remote areas across Canada.

Atlantic Canada

The National Energy Program includes a range of initiatives designed to respond to the special energy circumstances of Atlantic Canada. While it was clear that Atlantic Canada stood to benefit considerably from the overall national programs outlined in October 1980, special programs were needed to deal with the region's high dependence on imported oil, and the current unavailability of gas and reasonably priced electricity. The following special measures have been implemented:

- The enhanced conservation portion of the COSP program ("Super-CHIP") has been established, providing grants of up to \$800 for investments reducing oil heating costs in Prince Edward Island and Newfoundland.
- The Atlantic Energy Conservation Investment Program has been established, with a five-year funding level of \$40 million. This program provides grants to firms for investments that increase energy efficiency.
- An Off-Oil Utility Fund of \$175 million has been established. Support for a study on the technical, economic and environmental effects of the conversion to coal of the Coleson Cove generating station has been provided from this fund. The first two stages of this study are now complete, and a conversion option providing for oil savings of almost 9 million cubic metres (55 million barrels) over 12 years has been identified. These savings can be achieved while substantially reducing sulphur dioxide emission levels from the New Brunswick Electric Power System. Phase 3 of the study will soon be launched to provide more detailed engineering estimates prior to undertaking the necessary capital investment.

- The Coal Utilization Sub-Program has been established, providing for support of up to \$150 million for new efficient and environmentally acceptable coal utilization technologies. Several projects are either underway or expected to begin construction shortly. These include an atmospheric fluidized-bed twin boiler heating plant at Summerside, a pilot plant demonstrating coal-water process technology at Sydney, and a fluidized-bed test facility at Point Tupper.
- The CANMET Eastern Mining Research Laboratory has been officially opened. The laboratory will be dedicated to improving mine safety, and, in the long-term, mine productivity. The staff will work closely with the National Research Council's Atlantic Research Laboratory, which will be responsible for coordination of coal R&D in the Atlantic Region.
- Work has commenced on a \$60 million exploratory tunnelling program at the Donkin Mine, laying the necessary groundwork for subsequent full-scale production.
- The Scotia Coal Synfuels Consortium has initiated a feasibility study of the potential for liquefaction of up to 4 million tonnes per year of Nova Scotia coal. The first phase of the study, which has been assisted by a \$1 million grant from the federal government, is now complete, and the processes to be considered in the second phase are now being examined.

There have been some disappointments. In October 1980, the Government of Canada set aside \$200 million to support hydro development on the Lower Churchill River in Labrador. To ensure that every reasonable step was made to permit rapid implementation of one of the two projects under consideration, the Governments of Canada and Newfoundland have jointly funded additional fieldwork during 1981, to develop better information on the transmission crossing of the Strait of Belle Isle.

The Government of Newfoundland recently embarked on legislation designed to withdraw water rights for the existing Churchill Falls facilities. It seems unlikely that a new project commitment could be made until there is a resolution of the dispute with Hydro-Québec on the Churchill Falls power contract. The Government of Canada hopes that Newfoundland and Québec will work quickly towards a resolution of their differences concerning Labrador hydro development. In a period of high unemployment, it is tragic that a huge opportunity such as the Lower Churchill power development is stalled by an interprovincial dispute.

The North

The National Energy Program has three objectives for the North:

- Ease the energy cost burden for northern Canadians;
- Achieve resource development at a rate and in a manner compatible with a delicate social and environmental balance; and
- Consult closely with northerners in establishing rules for northern energy projects.

Since October 1980 the Government of Canada has made a number of decisions that show its determination to meet these objectives. It has also established a set of energy measures to meet the specific energy needs of northerners.

Conservation, conversion and renewable energy efforts

Energy conservation and reduction of oil consumption have special meaning for northerners, who bear higher energy costs than most other Canadians. In the National Energy Program, the Government of Canada recognizes this situation, with special measures.

Since 1980 the federal government has expended considerable effort to develop conservation, conversion and renewable energy programs and options that reflect northern needs and conditions. For instance, under the Canada Oil Substitution Program (COSP), northerners are eligible to receive grants of up to \$800 for enhanced conservation or furnace retrofit, in addition to the \$500 grants for insulation available under the Canadian Home Insulation Program (CHIP). In March 1982, the Government announced a \$58 million loan to the Northern Canada Power Commission to allow NCPC to construct a new 20 megawatt turbine-generator at the Whitehorse hydro site. Since this project will displace high-cost diesel-powered electricity generation, it will have a favourable impact upon northern energy costs, and thereby facilitate economic development.

In April 1982, the federal government announced a \$19 million program to assist off-oil conversion and energy conservation efforts in the Yukon and Northwest Territories. The Remote Community Demonstration Program (RCDP) allocates \$10 million to the two territories, to assist in the development and demonstration of innovative means for northerners to improve energy supplies from local sources and conservation methods so that, wherever possible, oil-based energy systems can be replaced. Under the first phase, communities will be assisted in identifying their energy reduction opportunities, and in the second phase, the most appropriate projects for demonstration will be financed. Regional management committees, composed of representatives from the federal and territorial governments, energy specialists and members of the communities affected, will ensure that the projects proposed and approved for demonstration represent creative yet realistic options. Northerners have a real stake in acquiring both the security and the reduced costs that will result from establishing a local energy supply. The Remote Community Demonstration Program will assist them to that end.

Other changes announced in April 1982 include expanding COSP eligibility criteria to conversion from electric space heat to other energy sources, particularly wood. Under the Distribution System Expansion Program (DSEP), market studies will be conducted to determine the potential for propane and natural gas distribution in the Yukon and Northwest Territories. Agreements between the federal government and each territorial government covering Con-

servation and Renewable Energy Development and Demonstration (CREDA) projects will continue to promote innovative new technologies of particular application to northern conditions.

The federal government will continue to adjust its conservation and renewable energy efforts to enhance the energy security, and to moderate energy costs of northerners. Thus, northern and national goals will be addressed together.

Conservation and Renewable Energy Projects in the North

Under the Federal-Provincial Conservation and Renewable Energy Development and Demonstration Agreements (CREDA), a number of significant agreements have been reached in the Yukon and Northwest Territories. These agreements, which are funded 75 per cent by the federal government, will promote innovative new technologies of particular application to northern conditions. The participation of the territorial governments in assessing and developing projects ensures that these are responsive to northerners' needs. As of April 1982, 43 CREDA projects in the Yukon (\$3.3 million) and 10 in the Northwest Territories (\$3.3 million) were underway.

In the Yukon, for instance, an aggressive commercial building audit and retrofit project is underway. Some 25 buildings are being altered to be energy efficient, at a total cost of over \$162,000, including the Whitehorse Medical Centre, several churches, hotels and other commercial establishments. In the Northwest Territories, major projects include the \$197,000 demonstration of a wood gasification system for power generation and district heating in Fort Providence, the \$36,000 demonstration of the recovery of compressor waste heat for heating an arena in Pine Point.

Energy price protection

To protect northerners from spiralling energy costs, a number of measures were introduced over the years. The present direct federal energy price subsidies combined with indirect subsidies through bulk oil storage, electricity rate design and public housing programs now amount to over \$24 million a year—the equivalent of \$350 for every man, woman and child in the North. While these subsidies were once necessary because of the lack of immediate alternatives, they have, as the Government of the Northwest Territories has argued, been counterproductive to meeting substitution and conservation goals.

The Minister of Indian and Northern Affairs announced on April 19, 1982 a further one year extension of subsidies during which time his department, in cooperation with other federal departments, and with input from the territorial governments, will undertake three studies reviewing the mandate and role of the Northern Canada Power Commission, alternatives to energy subsidies, and local petroleum refining in the Western Arctic.

Responsible northern resource development

In pursuit of our "need to know" the extent of hydrocarbon reserves in the frontier areas, an extensive exploration effort will continue in the Beaufort Sea and the High Arctic. The companies involved, however, are still some way from establishing sufficient reserves for supporting significant levels of production.

The Government is acting to ensure that a vigorous review of production proposals, through the Environmental Assessment and Review Process is undertaken to establish the environmental, social, and economic risks and benefits. A \$15 million Environmental Studies Revolving Fund, under the management of the Department of Indian and Northern Affairs, will directly fund necessary studies. Special advisory bodies, such as the Norman Wells Community Advisory Committee, will provide consultation and advice on ongoing or special projects. This extensive regulatory approval framework will ensure that northerners are consulted, and that their interests will be fully taken into account in subsequent decisions.

The Government has demonstrated its commitment to ensure that the effects of resource development do not conflict with the needs of northerners. Construction of the Norman Wells pipeline will not commence until October 1983. This decision was greeted with approval by the Dene and Metis of the Northwest Territories. It will allow time for the necessary planning studies to be completed, and special programs for training and social development to be put in place. In the meantime, it is hoped that good progress will be made in the settlement of aboriginal claims in the Mackenzie Valley.

Northern participation

Since the announcement of the National Energy Program, northerners have participated actively in northern energy issues. Both territorial governments have made tremendous strides in reducing energy consumption, particularly through their housing corporations. Both participated in the Task Force on an Energy Strategy for northerners established by the Minister of Indian and Northern Affairs in January 1981. This Task Force assisted the federal government in developing its approach to northern energy issues. The Ministers responsible for energy in both territories have had fruitful consultations with the Minister of Indian and Northern Affairs and the Minister of Energy, Mines and Resources. This has been invaluable in developing the application of national goals to the North.

Petro-Canada International Assistance Corporation

The National Energy Program announced the intention of the Government of Canada to create Petro-Canada International, now known as the Petro-Canada International Assistance Corporation, for the purpose of assisting

developing oil importing countries in their effort to reduce their dependence on imported oil. The sum of \$250 million has been budgeted for the period 1981-85 for this purpose.

Petro-Canada International Assistance Corporation has now been established and is operational. It will be offering Canadian technology and expertise to selected developing countries through activities such as conducting pre-exploration studies, participating in exploration for hydrocarbon resources and providing technical assistance and training in hydrocarbon exploration, development and production. Projects will be consistent with the Government of Canada's foreign aid objectives. Technical missions have already been examining possible projects in Jamaica, Senegal and Tanzania, and discussions have been held with a number of other countries. Specific projects to be undertaken are to be announced shortly.

Recap: Status and costs of energy programs

A review of the status and projected costs of the National Energy Program measures is provided in the accompanying sidebar. Over a four-year period, the projected costs of new initiatives announced in the NEP are over \$9 billion. In addition, over \$4 billion will be spent on programs stemming from activities undertaken prior to the NEP. Included in this latter category is funding for energy Crown corporations such as Petro-Canada, research carried out at the CANMET laboratories, and funding for programs such as PUSH and FIRE which were initiated in the late 1970s.

These sums are large, and are not easy to come by in today's fiscal circumstances. The Government is determined, however, to maintain the rate of progress in achieving our energy objectives. The programs outlined above represent an investment in Canada's future energy security.

A year and a half after the introduction of the NEP, over 70 per cent of the new programs launched are now fully operational. Many of the others need only await the completion of industry studies, action by provincial governments, or the passage of legislation by Parliament. Hundreds of thousands of Canadians have already received direct benefits under these programs; millions have benefitted indirectly through increased industrial opportunities and enhanced energy security. The effort and rewards are only beginning.

The Canada Lands

Remarkable progress has been made since October 1980, in two important respects. First, there have been encouraging indications that the substantial resource potential of the Canada Lands could be available earlier than believed at the time the NEP was announced. Second, the Government of Canada has put in place a new management framework for the Canada Lands, and has begun the process of concluding exploration agreements.

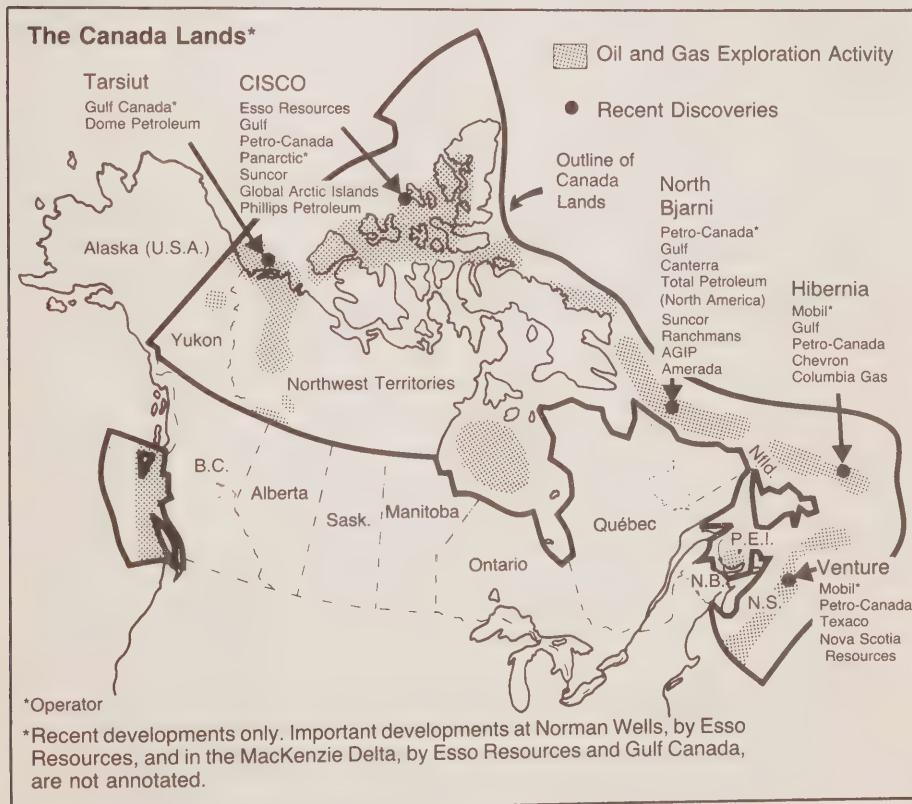
Energy Programs
1981-82 to 1984-85

<i>Program</i>	<i>Cost</i>	<i>Status</i>
(\$ millions)		
Industry Incentives	4,600	
Petroleum Incentives Program		Bill C-104 currently before Parliament
Oil Substitution	1,540	
Canada Oil Substitution Program		Operational
Conversion of Federal Buildings		Operational
Distribution System Expansion Program		Operational
Transmission System Expansion Program		Announced in this document
Propane Vehicle Initiative		Operational
Propane Demonstration (Government Fleets)		Operational
Conservation and Renewable	1,390	
Canadian Home Insulation Program		Operational
Canertech		Operational
National Energy Audit Program		Operational
Industrial Energy Management Program		Operational
Motor Vehicles Fuels Consumption Standards		Bill C-107 currently before Parliament
Retrofit of Federal Buildings		Operational
Remote Community Demonstration		Announced
Solar Demonstration (Residential Hot Water)		Operational
FIRE Extension		Operational
Agricultural Sector Initiatives		Under development
Super Energy Efficient Housing		Operational
Small Projects Fund		Operational
Special Atlantic Program	530	
Utility Off-Oil Fund		Operational
Lower Churchill Development Corporation		Delayed
Coal Utilization Package		Operational
Coal R&D		Operational
P.E.I. Conservation and Renewable Energy		Operational
Atlantic Energy Conservation Investment Program		Operational
Upgraders	330	Under development
Research and Development	500	Operational
Petro-Canada International	220	Operational
Sub-total	9,110	
Pre-NEP Initiatives	4,270	
Total	13,380	

Reserves and potential resources

The National Energy Program did not include any reserves from the Canada Lands in its estimate of the oil supply available to Canada in 1990. However, delineation of the Hibernia oil discovery of 1979 has proven up reserves of over 160 million cubic metres (1 billion barrels) of oil, with good prospects for reserves additions. Assuming that a reservoir of 250 million cubic metres (1.5 billion barrels) is proved up, Hibernia would support production of about 40,000 cubic metres (250,000 barrels) per day. In addition, there has been further drilling, with encouraging results, in the Beaufort Sea - Mackenzie Delta region. The map shows the significant discoveries and delineation targets that have been the focus of attention since October 1980.

The oil and gas potential of the Canada Lands, although still largely unproven, is substantial. The latest estimates of the Geological Survey of Canada's Institute of Sedimentary and Petroleum Geology (ISPG), now place the total potential of the Canada Lands at 4.6 billion cubic metres (29 billion barrels) of oil and 8.5 trillion cubic metres (300 trillion cubic feet) of gas. In



particular, there is major potential for oil on the East Newfoundland Shelf (1.3 billion cubic metres or 8.4 billion barrels), where the Hibernia oil field was discovered in 1979; in the combined area of the Beaufort Sea and Mackenzie Delta (1.5 billion cubic metres or 9.4 billion barrels); and in the Arctic Islands region (700 million cubic metres or 4.3 billion barrels).

Thus, there is increasing reason to expect an important contribution to Canada's oil needs from reserves in the Canada Lands. However, both Government and industry efforts will have to intensify if some of this oil is to be on stream by the end of this decade. The Government of Canada is determined that exploitation of Canada Lands resources will proceed only when it is safe, environmentally sensible, and in harmony with the needs and aspirations of the people of the region. The Government of Canada will accelerate its efforts across this spectrum of obligations. In particular, it is determined that every effort be made to avoid a repetition of tragedies such as the Ocean Ranger accident.

New management regime for Canada Lands

The new *Canada Oil and Gas Act*, proclaimed on March 5, 1982 contains provisions that improve the likelihood that Canadians will be able to begin drawing on the oil and gas potential of the Canada Lands by the end of this decade.

The Exploration Agreement Process

The specific terms and conditions of an Exploration Agreement are determined by negotiation. Terms and conditions will vary from agreement to agreement, depending on the maturity of the area in question (i.e. the degree of exploration activity that has already taken place), local environmental conditions, the length of the drilling season, and any technological or other constraints that might be present. However, each agreement will address certain key issues:

1. Size of holding: The area covered by the agreement will be adjusted to ensure that an adequate exploration program can be mounted given the maturity of the area. Individual agreements will not generally exceed 810,000 hectares (2 million acres). Such a limitation on the size of agreement areas will ensure that appropriate exploration programs take place on each individual block, avoiding concentration in one area, and neglect of another.

2. Tenure: The length of the agreement will vary with the work program and operating conditions. The maximum duration of agreements is five years, although in exceptional circumstances the Minister may extend the term to as much as eight years.

3. Work program: Both seismic and drilling commitments will be required in the agreements. Companies will generally be required to drill at least one well under each agreement, and more activity will be required in mature areas.

4. Canadian ownership: A Canadian Ownership Rate of at least 50 per cent is required before a company can obtain a production licence. However, companies will be encouraged, but not required, to involve new Canadian players at the exploration stage, either as partners or through such devices as farm-outs. This process will be facilitated by the support given to Canadian companies under the Petroleum Incentives Program. Under a typical farm-out, the Canadian company (the farmee), in return for a contribution to costs of the exploration program, should earn an interest in the exploration agreement area.

Companies with lower Canadian participation are welcome on the Canada Lands; indeed, they hold a large percentage of the prospective lands. They will continue to play a key role in the effort to find and develop the frontier's resources. They are

welcome to participate in bids for new lands that are put out under Calls for Proposals.

5. Land selection: Companies will generally be asked, as part of the negotiating process, to return 50 per cent of the lands held under each agreement to the Crown over the term of the agreement. This general negotiating objective will be relaxed, however, if it does not provide enough drillable prospects over the course of the company's work program. Lands so returned will be by an alternating selection process. The interest holder starts by selecting for his retention all of his significant discoveries and any prospects which he commits to drill during the work program. Thereafter, selection by the explorer and the Crown will be on an alternating basis, with the explorer selecting the first additional area, until the 50 per cent to be relinquished has been identified. It bears emphasizing that the interest holder will retain the right to all discoveries that he makes and, in addi-

tion, he gets first choice of the remaining land.

6. Environmental protection: Measures to ensure fullest protection of the environment will also be included in all agreements.

In addition, the *Canada Oil and Gas Act* requires submission of a Canada benefits plan satisfactory to the Minister before commencement of any work program under an exploration agreement. This ensures that Canadians are given full and fair access on a competitive basis to the industrial and employment benefits arising from exploration programs. Affirmative action plans to aid disadvantaged groups such as native people may also be required. Other relevant aspects include the extent to which Canadian partners will be active participants in exploration, and acquire the technical knowledge that they need to enable them in time to become Canada Lands operators in their own right.

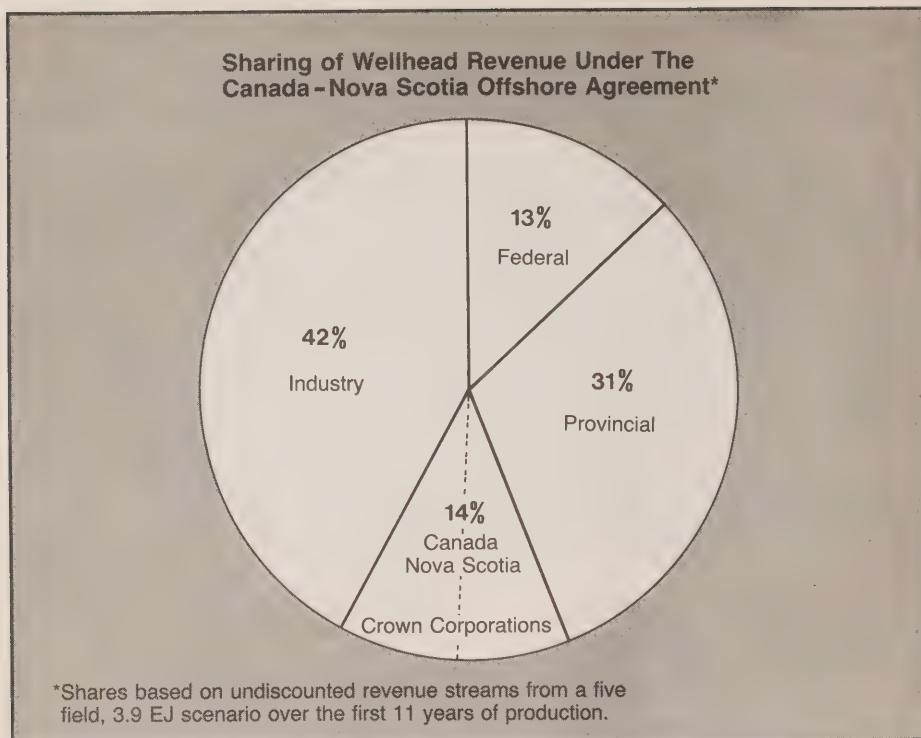
As a first step in the implementation of the new management regime, the Act requires company-by-company negotiation of exploration agreements covering all outstanding interests in the Canada Lands. The Canada Oil and Gas Lands Administration (COGLA) has begun negotiations with the major interest holders, under a timetable set by the Act. The first agreement concluded under the new system was with a longtime Canada Lands operator, Esso Resources. The terms of this agreement are fully consistent with the objectives of the new Canada Lands regime. Other agreements are in the process of active negotiation.

Canada—Nova Scotia Agreement

The National Energy Program presupposes timely resolution of federal-provincial differences over offshore resources. The Government of Canada is particularly concerned that uncertainties caused by such disputes could delay both the exploration for essential oil and gas resources in the Canada Lands, and the increased economic activity upon which lasting prosperity for the Atlantic region could be based.

With this in mind, the Government of Canada initiated a new round of bilateral negotiations on offshore resources in the autumn of 1981 with the Governments of Nova Scotia and Newfoundland.

The major breakthrough in the negotiations, which began in the fall of 1981, was the Canada - Nova Scotia Agreement on Offshore Resource Management and Revenue Sharing, signed on March 2, 1982. This Agreement, like the



pricing and taxation agreements signed in 1981 with Alberta, Saskatchewan and British Columbia, is fully consistent with and supportive of the precepts of the National Energy Program: security, opportunity and fairness.

The Canada - Nova Scotia Agreement is a major step toward national energy security and increased economic prosperity for Nova Scotia. It establishes by long-term agreement a unified management regime based largely on the principles underlying the new *Canada Oil and Gas Act*. As such, the Agreement provides the certainty required for exploration and development, and greatly increases the prospect that offshore gas production and related economic benefits will be flowing to Nova Scotians well before the end of the decade.

In addition, the Agreement provides to the Nova Scotia government potential revenues that could equal, or even exceed, the average fiscal capacity of Canadian provincial governments. It also provides for a gradually increasing share of financial benefits for all Canadians, once Nova Scotia revenues from offshore production reach the agreed level.

The first meeting of the Canada - Nova Scotia Oil and Gas Board took place on April 22, 1982, in Halifax, and implementation of the Canada - Nova Scotia Agreement is proceeding apace.

Newfoundland

It has not been possible to reach a negotiated settlement with the Government of Newfoundland, and the matter of offshore resource jurisdiction is now before the courts. The Government of Canada remains prepared to negotiate management and revenue-sharing arrangements along the lines of the Nova Scotia Agreement, with specific provisions for Newfoundland's particular needs and opportunities. The Government of Canada believes that its success in reaching comprehensive, fair and enduring agreements with Alberta, British Columbia, Saskatchewan and Nova Scotia demonstrates its willingness to arrive at pragmatic, Canadian solutions to intergovernmental resource issues.

British Columbia

Unlike the East Coast, all oil and gas activity offshore the West Coast has been suspended under a federal moratorium since 1971. A decision to lift this moratorium would have to be made prior to any renewed offshore activity.

In negotiations with the British Columbia government, the federal government will seek an agreement on cooperative management for the entire West Coast offshore region. At the same time, the Government of Canada remains committed to ensuring that the potential impact of renewed oil and gas activity on the society, environment and fishery of the West Coast is fully assessed, prior to any decision to allow exploration to proceed.

Canadianization of the oil and gas industry

One of the major objectives of the National Energy Program is an increase in the opportunity for Canadians to participate in the oil and gas sector. Three specific goals were enunciated:

- At least 50 per cent Canadian ownership of oil and gas production by 1990;
- Canadian control of a significant number of the larger oil and gas firms; and
- An early increase in the share of the oil and gas sector owned by the Government of Canada.

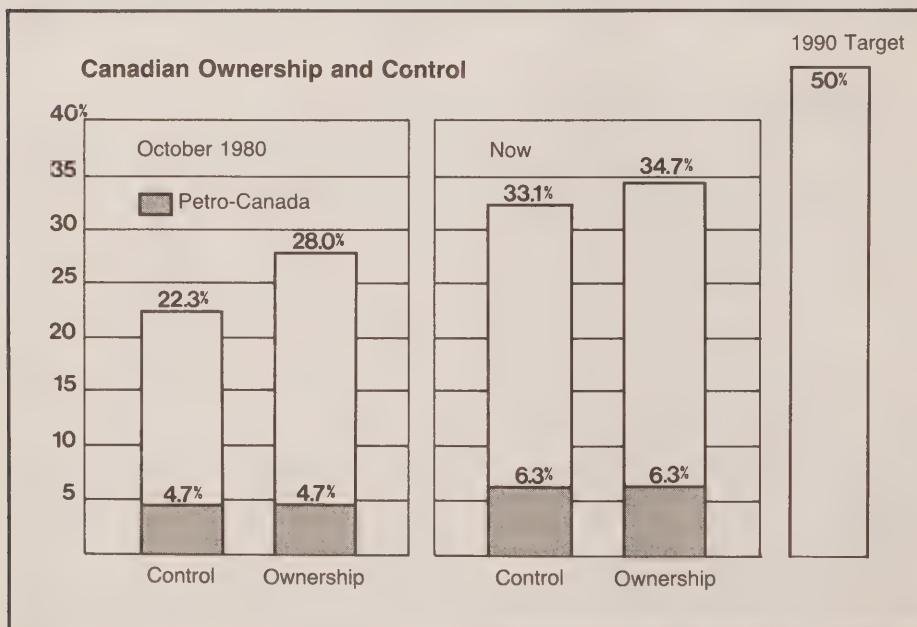
This emphasis on gaining for Canadians increased ownership and control over their own resources reflected a conviction that there were important economic benefits in encouraging Canadians to own more of the oil and gas industry, and to participate more actively in its management in the future. It also reflected a belief that in the absence of some concrete actions on the part of the Government, ownership and control of the industry would remain predominantly outside Canada for the foreseeable future.

The foreign component of the industry was previously in a favoured position. The foreign companies' generally high profitability allowed them to make full use of the Canadian tax regime, while their strong land position, healthy cash-flow and experience gave them an edge on future production prospects. Moreover, the foreign multinationals, in particular, predominated in the tar sands and frontiers, areas that were expected to account for increasing shares of Canada's future production. Thus, foreign domination of this strategic sector was likely to increase.

Concrete steps were taken to ensure that these goals were achieved. Included among these were:

- Petroleum Incentives Grants designed to encourage Canadian owned and controlled firms to explore;
- Reservation of a 25 per cent interest in Canada Lands for the Crown; and
- A requirement that the overall average Canadian ownership of a producing field in the Canada Lands be 50 per cent.

The measures announced were not punitive, nor designed to drive foreign owned firms away from Canada. Canada remains open to foreign investment, and the fiscal and price terms offered to foreign owned firms compare favourably with those offered around the world. Rather, the measures taken were designed to ensure that a growing share of future production would be owned by Canadians.



The Canadianization objectives of the National Energy Program have been widely endorsed. The Governments of Saskatchewan and British Columbia underscored their support of this part of the Program in the agreements reached last autumn. The Government of Alberta went even further, agreeing to administer and pay for the Petroleum Incentives Program in that province.

Other steps quickly followed the announcement of the National Energy Program. Petro-Canada purchased Petrofina Canada in February 1981. This was the first major acquisition, and the only one so far involving a federal Crown company. This move raised the direct federal public sector ownership of the industry from 4.7 per cent to 6.3 per cent of total upstream revenue, and went a long way in realizing the Government's objective of building Petro-Canada into a fully-integrated company with national scope.

In December the Cooperative movement and the Government of Canada agreed to work together to develop an investment vehicle that would allow the many cooperative members across Canada to participate in the oil and gas sector. The result of this agreement is the development of three new organizations: Cooperative Energy Corporation, a holding company; Cooperative Energy Development Corporation, an oil and gas exploration and development company; and Cooperative Energy Investment Fund, a trust fund. The federal government will invest up to a maximum of \$100 million, over the next five years, to match investment funds generated by the cooperative organizations. The enabling Bill will be introduced in Parliament within weeks, and is expected to be passed by early summer.

The most dramatic Canadianization moves have been the response of the private sector to the opportunities made available to them. Clearly Canadian investors, if given a chance, want to participate in the sector. They have responded in two ways. First, a series of acquisitions and mergers have occurred in the last 15 months. Second, many Canadian firms are "farming-in" on prospective lands controlled by foreign owned firms. By paying the exploration costs, these Canadians will earn a share of future production. Under the previous system, Canadians financed the exploration as either consumers or taxpayers, but ownership rested with the existing, mainly foreign owned firms.

The rate of progress, in the short run, towards our Canadianization goals has exceeded the Government's expectations. Canadian ownership of oil and gas upstream revenues has risen 6.7 percentage points, to 34.7 per cent. Canadian control of the producing industry has increased to 33.1 per cent. Clearly, however, Canadian ownership and control of domestic oil and gas resources is still low by international standards.

Already, there is a stronger Canadian presence among the group of larger companies. The table below reveals that, based on production revenue, Petro-Canada now stands in fourth position, Dome Petroleum in seventh and Canterra—a company amalgamating the interests of Aquitaine, Texasgulf and CDC Oil and Gas—is now ranked twelfth. While there is undoubtedly some way to go in establishing a strong Canadian controlled presence in the industry,

Major Corporate Acquisitions since October 1980

<i>Name of Acquiring Company</i>	<i>Acquisition Date</i>	<i>Company Acquired</i>	<i>Purchase Price (\$ millions)</i>
1. Petro-Canada	Feb. 1981	Petrofina	1,450
2. Sulpetro	April 1981	CanDel Oil Co.	536
3. United Canso Oil and Gas Ltd.	April 1981	Great Basins Petroleum Ltd.	164
4. Dome Petroleum	June 1981	Hudson's Bay Oil and Gas (52%)	2,000
5. Fairweather Gas Ltd.	June 1981	Alamo Petroleum Ltd. } 6. Fairweather Gas Ltd.	213
7. Husky Oil Ltd.	June 1981	Amax Petroleum Ltd. }	371
8. Drummond Petroleum Ltd.	June 1981	Uno-Tex Petroleum Corp.	101
9. Canada Development Corp.	June 1981	Union Texas of Canada Ltd.	
10. Turbo Resources Ltd.	July 1981	Aquitaine Company of Canada Ltd.	1,600
11. Ontario Energy Corp.	Oct. 1981	Merland Explorations Ltd. (50.75%)	132
12. Oakwood Petroleum Ltd.	Oct. 1981	Suncor Ltd. (25%)	650
13. Aberford Resources Ltd.	Feb. 1982	Quasar Petroleum Ltd. (81%)	43
14. Francana Oil and Gas Ltd.	May 1982	Marathon Petroleum Canada Ltd.	265
		Pan Ocean Oil Ltd.	
		Sceptre Resources Ltd.	150
			\$7,675

Total change in Canadian ownership to date 6.72%

Total change in Canadian control to date 10.83%

try—only two of the top ten firms are controlled by Canadians—an important start has been made.

The Government remains committed to its Canadianization objectives. This commitment is a long-term one, as are the objectives. Considerable progress has been made. The prudent approach is to use scarce domestic financial and management resources in a manner that maximizes economic gains to Canadians from this sector. In some cases this may be through acquisitions of existing assets; in other cases it will be through participation in joint ventures; in still other cases it will involve vigorous exploration on the part of Canadian companies. In all cases it should involve gradual but steady steps paced to achieve all three objectives by 1990. The Government believes that Canadians have the will and desire to support Canadianization throughout the decade, and our objectives will be achieved.

The Largest Oil and Gas Producing Companies as of December 1981
(by upstream revenue)

<i>Rank</i>	<i>Foreign Controlled</i>	<i>Canadian Controlled</i>
1.....	Imperial (1)	
2.....	Gulf (2)	
3.....	Texaco (3)	
4.....		Petro-Canada (7)*
5.....	Shell (4)	
6.....	Amoco (5)	
7.....		Dome (12)†
8.....	Mobil (6)	
9.....	Suncor (10)	
10.....	Chevron Standard (9)	
11.....		Pan Canadian (11)
12.....		Canterra (14)‡
13.....	Canadian Superior (13)	
14.....	Canada Cities (17)	
15.....		Norcen (15)

Figures in parentheses indicate ranking in 1979.

*Includes Petrofina.

†Includes Hudson's Bay Oil and Gas.

‡Includes Aquitaine, CDC Oil and Gas and Texasgulf.

The downstream oil industry

The National Energy Program as announced in October 1980 focussed to a large extent on the upstream oil and gas industry. While little explicit attention was paid to the downstream oil industry, changes in that industry were implicit in the outlook presented in the 1980 document, and some specific initiatives were announced. In particular, the penetration of natural gas and electricity further into existing markets, and expansion into new markets, implied changes in overall demand for petroleum products, and in the composition of this demand. The decline of overall oil demand implied the gradual emergence of excess refinery capacity. The shift in composition of demand meant an upgrading of refining capacity to produce more light products, and fewer heavy products. The NEP document announced investments by several refiners designed to achieve a product mix more in keeping with probable demand.

Since the announcement of the NEP, the outlook for the downstream has changed. The success of the Program in cutting demand and speeding conversion to natural gas and electricity has accelerated the trends foreseen in 1980. Demand for oil products is already below previously forecast levels. Imports, formerly expected to grow in the early years of the decade, are now

expected to fall, and the composition of product demand is changing dramatically. While this acceleration of the shift off oil is a sign of the NEP's success in meeting our energy security goals, it has put strains on the downstream sector. It also has forced both business and Government to re-examine strategies adopted at a time when most thought that the changes would be more gradual.

The publication of the report of the Director of Combines Investigation and Research entitled *The State of Competition in the Canadian Petroleum Industry* has served as a reminder of the importance of ensuring that the structural adjustments now taking place are consistent with the maintenance of vigorous competition, and the protection of consumer interests. The Government of Canada awaits with interest the report of the Restrictive Trade Practices Commission. While it would be inappropriate to prejudge the outcome of the inquiry process now underway, or to articulate specific Government measures with respect to competition policy for this vital sector, it may be useful to review the outlook for the industry, and to outline the Government's broad policy stance.

Refinery rationalization and investment

The Canadian petroleum refining industry is faced with the conflicting demands of rationalization and investment. A growing excess of crude processing capacity, unfortunately, comes at a time when there is an increased need for equipment modifications as available crude oils and product mix change over the next decade and beyond.

Forecast reductions in the demand for refined petroleum products due to conservation and substitution will result in lower capacity utilization and, in time, some refinery closures. Québec and Atlantic refineries will be particularly affected as competitively priced natural gas becomes available through the planned pipeline extension to Halifax or connection to Sable Island gas. Ontario refiners will also be affected by lower regional demand as well as reduced demand for heavy fuel oils in export markets. Western Canada will probably be least affected by problems of overcapacity. Tough decisions will have to be made by individual refiners as to the appropriate response to these shifting market conditions, and the Government of Canada believes that these decisions are best left to the private sector.

Refiners will also have to make substantial new investments to modify plants to handle different crudes and meet shifting product demand. The trend toward production of heavier and more sour crudes in Canada and elsewhere will require significant investments in a number of refineries, built originally to handle only light sweet crude, or the building of stand-alone upgrading facilities. Overall, the product mix is shifting away from fuels for thermal uses toward premium transportation fuels.

By world standards, Canadian refineries already incorporate a high ratio of conventional conversion capacity designed to maximize the yield of light

products and minimize the yield of heavy fuel oil. There are only three operating skimming refineries in Canada. As the name implies, these refineries only skim off the easily obtainable light fractions, leaving a relatively high proportion of the crude oil as less valuable heavy fuel oil. As has already been indicated, significant new investments will be required to bring the product slates of these refineries more in line with expected product demand and prevailing industry practice. In some cases investments may now be scaled down as the refiners re-examine the economics of such investments in light of the more rapidly falling product demand. From an energy point of view, there is no advantage in building additional capacity to refine product if the outlook is for falling demand.

Investments in deep upgrading technology, such as the proposed Montreal Central Heavy Fuel Oil Upgrader (Carmont) are also being studied. This type of investment would offer Canada some real opportunities, but faces even stiffer economic barriers and more uncertainties. The Government remains committed to consult with the industry to find the appropriate approach in light of present forecasts for petroleum product demand.

Oil imports

In October 1980, the Government articulated its view of Canada's import strategy. This strategy was two-pronged. The primary responsibility for assuring that Canada's import needs are met has been, and should continue to be, with the refiner. In most cases, this means the Canadian affiliates of multi-national firms, but the acquisition of Petrofina by Petro-Canada means that Canada's national oil company will have an important share of the responsibility. At the same time, there may be strategic considerations promoting an interest on Canada's part to have state-to-state oil arrangements. The Government does not envisage a large increase in the share of imports covered by such arrangements. Where such arrangements are entered into, they will, of course, have to meet Canada's economic and energy goals.

Earlier attempts to develop oil import strategies, both within the Government and by the private sector, have been based on the fundamental premise that Canada's import needs were likely to grow in the medium term. It was therefore important to maintain existing import relationships, and to develop new ones. The demand reduction success achieved since the National Energy Program was announced has called that premise into question, and is forcing both Government and industry to question their previous assumptions. There now appears to be a consensus that imports are unlikely to grow in the medium term. Some even argue that imports will drop sharply.

This shift in outlook raises many fundamental issues. The Canadian oil supply system has been designed on the basis of some imports. Some refiners in eastern Canada have no access to a pipeline providing Canadian crude. Even the Montreal refineries continue to rely on imports through the Portland pipeline for some of their crude oil.

The outlook has further shifted as the supply picture has changed. Crude oil from Hibernia will likely be available by the end of the decade to serve eastern Canada. When this occurs, imports will be easily backed out. Thus, the uncertainty concerns the amount and type of imports needed until Hibernia oil becomes available. While it may now appear that imports will continue to fall, it is also possible that imports will again rise marginally when economic growth rebounds.

Uncertainty prevails. Therefore it would appear imprudent at this stage to significantly reduce Canada's access to imports. Instead, measured reductions in import volumes, in a manner that allows renewed access in later years, would be the wiser course.

The need for competition

The radical changes in the industry in recent years, and the future shifts now expected, pose questions about the survival of small firms in this sector, and the maintenance of vigorous competition.

Historically, the independent marketers in the gasoline marketing sector have maintained or increased their market share, and have done so over a period in which gasoline marketing has, in response to public taste and technology, significantly changed. During the period 1971-80, the number of service stations in Canada declined by over eleven thousand or roughly one third. This decline coincided with an increasing demand for gasoline, resulting in a doubling of the volume sold per outlet. Exits from the business were relatively larger among major refiner branded outlets and there was an actual decline in the market share of the majors* from 64 to 57 per cent. The branded outlets of smaller refining companies declined in number as well, but proportionately less. Private branded outlets, that is, outlets that do not use a refiner's trademark, increased both in number and in market share.

The number of gasoline stations will probably decline further. Yet the impact of declining demand will probably be no more severe than the upheavals of the past decade. Other challenges may also emerge in the form of new demands for alternative transportation fuels such as propane and compressed natural gas.

The Government of Canada will monitor closely these structural shifts to ensure competition is maintained. It believes that if true competition is allowed to prevail, the independent sector has the ability to adjust as well as the majors to these changes.

To ensure this, the Government will continue to monitor closely the behaviour of the major companies. It will also try to ensure as open a market as is possible, consistent with Canada's broader energy and economic objectives, through its policy towards the import of refined petroleum products. Access to

* Imperial Oil, Gulf, Shell, Texaco.

alternative foreign sources of supply imposes a discipline on the domestic petroleum market. This may be particularly important in certain regions where refinery rationalization may reduce the number of competitors. The actual or even threatened alternative of product imports is an important negotiating lever for independent marketers in their dealings with domestic refiners. Products purchased in this way can lead to greater retail price competition. Thus, the ability of independents to compete in the market will not be restricted because of an inability to purchase petroleum products from the integrated refiners, with whom they may be in competition in selling their products to consumers.

Fuel oil distribution is facing a severe and permanent contraction due to the increased availability of competitively priced alternatives in eastern Canada. Small private brand jobbers are expected to be particularly vulnerable in this declining market. While this structural change is unavoidable in the light of the need to reduce our dependence on oil, the Government is concerned that such adjustments not cause unnecessary financial hardship. To ensure that barriers to the orderly rationalization of the industry are minimized, the Government will continue to be flexible in considering applications submitted in compliance with the *Foreign Investment Review Act* for the purchase of small independent jobber businesses.

Chapter 4

ISSUES REQUIRING ACTION

It is important both in economic and energy terms that Canada have a strong and growing oil and gas industry. The National Energy Program is designed to help this occur. No government can guarantee the industry's success. But the federal and provincial governments working together in the spirit of their agreements can provide a price and fiscal framework that can maximize the opportunity for this sector.

Significant economic forces beyond the control of both levels of government have affected this industry. The world economic slowdown has depressed gas export markets. Through its impact on the Canadian economy, it has depressed domestic demand for both oil and gas, and reduced the returns for those upstream firms operating in the downstream sector. High interest rates, imported from abroad, have been particularly punishing for many small firms. General economic conditions have weakened equity markets, making new sources of capital difficult to obtain. The recent moderation in world oil prices has prevented expected increases in gas export prices, and injected a degree of uncertainty into expectations about returns on new oil investments.

Many of these difficulties are faced by firms in other sectors of the economy and, relative to other industries, the oil and gas sector overall fares reasonably well. Yet there were real problems. Many firms made investments on the assumption that world prices would continue to rise quickly, and gas export markets would continue to expand. These firms are now caught, some with large inventories of gas, others with drilling equipment not needed because the gas exploration boom has slowed down.

Many firms, both large and small, have financed their expansion through debt rather than equity. These firms have been affected by the current high interest rates, and have been forced to curtail their exploration activity.

The shut-in oil problem, which was not anticipated, has meant that revenues to the industry are less than expected.

The revenues expected to accrue to governments and the industry over the period are now lower than those anticipated in the autumn of 1981. The Government of Canada will absorb the larger share of this decline, if it materializes. Lower than expected international prices have not yet had a major impact on industry revenues, but will likely lead to a squeeze over the next 12 months. After that period, it is expected that its revenues will begin to rise significantly.

Problems do, therefore, exist in the oil and gas sector, and corrective measures are necessary. This chapter addresses these problems—gas markets,

shut-in oil and short-run cashflow constraints—and outlines measures that the Government of Canada will implement immediately to help solve them.

The chapter also looks at the electricity sector, one of Canada's energy and industrial success stories. Two issues—the nuclear industry and the possibilities of developing a Western Grid—are discussed. Specific measures designed to ensure continued success are announced.

Natural gas

Natural gas is one of Canada's great energy strengths: as a substitute for expensive, insecure oil, as a major source of export earnings, and as an important contributor to economic activity particularly in the West.

Annual reserves additions exceed production and proven reserves therefore continue to grow. Canadian gas now serves domestic markets from the mainland coast of British Columbia to east of Montréal. The long-range future for the western basin is clearly bright in terms of further development opportunities and the resulting economic activity.

The bold frontier exploration efforts of the past two decades have demonstrated the existence of major, geographically diversified gas resources in the Canada Lands. While commercial development of some of these resources is still years away, their presence increases confidence in the extent of our natural gas resources and in the wisdom of policies designed to build on that potential.

Continued drilling on the Scotian Shelf around Sable Island has yielded strong evidence of significant natural gas reserves in the region. The Government of Canada is encouraged with the progress in proving up gas reserves to economic threshold volumes. It attaches a high priority to the development and production of these gas reserves before the end of this decade.

The gas industry's success, supported by generous incentives at both federal and provincial levels, has led to a growing surplus of natural gas. Cumulative additions to natural gas reserves for the period 1976-80 have been 31 exajoules; while cumulative production has been 13 exajoules. This is a situation that many countries would envy, because it is one more manifestation of Canada's energy strengths, but it is a real financial problem for the gas producing industry. Having spent considerable time, effort, and money on gas exploration and development, many companies are constrained, by limited markets, from realizing a return on their investment. The problem is particularly serious for the smaller firms.

Little wonder, then, that exploration for gas has fallen dramatically in the past two years. In one sense, this is a logical solution to the inventory problem: to gear exploration efforts to the likely market. Some of this is unavoidable. However, there are problems in relying entirely on such a solution. Canada needs an aggressive exploration industry, to maintain the search for both oil and natural gas. Cash flow from natural gas sales will increasingly be needed by exploration entrepreneurs to support their efforts to find oil. Some of the most

aggressive explorers are Canadian newcomers to the gas industry, who have already demonstrated their ability to contribute to Canada's energy balance.

Therefore, it is essential to allow the gas producers every reasonable chance to market their product—first, on the domestic market, where there is much symmetry between the producer's interest and the objectives of energy security; and second, on the export market, under policies designed to protect future Canadian requirements for gas, and to meet the need of the gas industry for markets to sustain and, if possible, enhance their cashflow position.

The National Energy Program reflects such a balance. It recognizes and builds on these resources and industry strengths, both to secure our energy future by reducing oil-dependence and to reap the regional and national economic benefits that stem from an expanding gas industry.

The specific actions already taken by the Government of Canada to foster the expansion of domestic gas markets were outlined in Chapter 3. While the Government is encouraged by the results achieved to date, there is a need to accelerate the process. This section sets out new initiatives for increasing the demand for gas in the industrial market, and for expanding natural gas infrastructure. It also outlines the actions the Government will take to ensure that gas will be available in the Maritimes as soon as possible while maintaining its commitment to the rapid development of Sable Island gas reserves. Finally, the Government's views on gas export policy are outlined.

The industrial gas market

The Government of Canada is not satisfied with the rate of progress in expanding natural gas sales in the industrial market, where there are larger opportunities for oil displacement. As well, these markets are of critical importance to the economic viability of gas distributors.

Two specific problems must be addressed. First, industrial consumers with limited funds often prefer to invest in manufacturing equipment directly related to their business, rather than in fuel conversion. Second, the progress of natural gas marketing, particularly in eastern Canada, is being impeded by competition from residual fuel oils.

The Government of Canada will therefore hasten the expansion of industrial gas markets with the following program of action:

- The Government of Canada is prepared to meet 50 per cent of the cost of converting to natural gas, industrial, commercial and private institutions that currently use residual fuel oil and do not have dual firing capability. The contributions will be available only for a specified period from June 1, 1982 or from the date on which gas service is first offered to the consumer in question, whichever is later. They will be conditional on the recipient contracting to purchase minimum gas volumes for a specified period of time. Discussions are now underway with gas distributors to define specific program criteria, which will be announced in a few weeks.

- Imports of residual fuel oil will require a licence from the National Energy Board effective June 1, 1982. Applications for imports for consumption in areas served by natural gas will be judged against the clear Government policy to discourage such imports. Canadian refiners will be expected not to increase their production of residual oil. The Government of Canada will seek voluntary targets for fuel oil production from each refiner. Consultations will be held with refiners with a view to making them aware of the schedule for gas availability in eastern Canadian markets, and the Government's wish that gas marketing not be impeded by residual oil.
- Finally, exports of heavy fuel oil will be facilitated to help clear the market for natural gas. To this end, the National Energy Board is prepared to consider issuing longer term or open licences for exports of heavy fuel oil from Québec and the Atlantic Provinces.

If the foregoing steps do not prove effective in moving more gas into industrial energy markets, additional measures will be put in place.

Gas in the Maritimes

The Government of Canada's commitment to the extension of reasonably priced natural gas service to the Maritimes is maintained. It was announced in October 1980 that the pricing system would establish prices at the city gate in Halifax at the same level as those in southern Ontario and Québec. The Government followed up on this commitment in its Policy Statement on Domestic Natural Gas Pricing, which was issued on January 13, 1982 and specified that city-gate prices in all markets east of Toronto will be the same as the cost of similar service in Toronto.

The Government of Canada's commitment to gas in the Maritimes was also reflected in its December 1981 decision to approve the issuance of a Certificate of Public Convenience and Necessity by the National Energy Board to Trans Québec & Maritimes Pipeline Inc.

Since the introduction of the National Energy Program, two developments having a bearing on the issue have occurred. First, important progress has recently been made on the technical and political fronts with regard to Sable Island gas: further exploration success suggests that sufficient reserves will soon be proved to support a pipeline to the mainland. Also, in March 1982, the Governments of Canada and Nova Scotia reached an agreement that encourages rapid commercial development of this resource. The Canada Oil and Gas Lands Administration has recently approved the drilling of two further exploratory wells. Gas may be available from the Sable Island area as early as 1987.

Second, the construction timetable for the Trans Québec & Maritimes pipeline has slipped because of provincial regulatory delays and other factors beyond the control of the Government of Canada. Completion of the pipeline to Halifax is not now expected until late 1986.

The near-coincidence of these dates obviously creates the need to consider whether the transmission system for the Maritimes should be re-oriented around Sable Island gas supply. However, the Government of Canada appreciates that this possibility poses financial risks and operational uncertainties for Trans Québec & Maritimes Pipeline Inc.

The Government of Canada, in accordance with the Canada - Nova Scotia Agreement, will support fully the continued progress of Maritimes gas transmission system development in a manner consistent with its commitment to the rapid commercial development of the promising gas resources of the Sable Island area. The Canada Oil and Gas Lands Administration will ensure that the industry proceeds rapidly to delineate the gas reserves in the Sable Island area, and to carry out the necessary technical studies to ensure rapid development of this resource. Planning an optimal gas transmission system in eastern Canada will be easier for governments and commercial entities when better information about the size, timing and development costs of Sable Island gas is available.

Meanwhile, however, the schedule for the Maritimes pipeline will not be allowed to slip further. Therefore:

- The Government of Canada will meet the full cost of engineering and survey work on the gas transmission system between Québec City and the Atlantic coast to be carried out by Trans Québec & Maritimes Pipeline Inc. The funds will be advanced in the form of an interest-free loan, to be repaid when the Maritime portion is constructed. The work will consist of all aspects that can be carried out prior to a decision on the sourcing of gas. It will therefore be applicable whether the Maritimes are supplied with gas from Alberta, from Sable Island, or from both sources. With this work done, final pipeline design and construction can start as soon as the information on Sable Island gas resources is firm enough to support the relevant gas supply decisions.

Energy consumers in the Maritime Provinces will not have access to pipeline gas quite as quickly as was anticipated when the National Energy Program was first announced. However, possibilities exist in some areas to "pre-build" markets for pipeline gas on the basis of propane from local refineries and from western Canada. Therefore:

- Propane in the Atlantic Provinces will be a fuel source eligible under the Canada Oil Substitution Program where a residential or commercial consumer is converting off oil. The grant will be applicable to conversions undertaken at any time since the announcement of the National Energy Program on October 28, 1980.

Other expansion of natural gas infrastructure

Assistance to natural gas infrastructure will not be limited to the Maritimes. Indeed, construction of the trunk line of the Trans Québec & Mari-

times system is now underway in the Province of Québec. The system as currently approved consists of this trunk line with a series of "laterals" or branch lines. The Government of Canada wishes to encourage the expeditious and cost-effective completion of the branch lines that have been approved as they provide access to important gas markets. But it recognizes that these lines are very costly compared to laterals constructed in other parts of Canada. Therefore:

- The Government of Canada will establish a "laterals fund" of \$500 million to pay for construction of laterals in the Province of Québec, up to their current estimated cost.

The estimated cost of these new laterals has more than doubled since October 1980. In large part, these escalations reflect the cost of delay in proceeding with gas expansion. The amount of the laterals fund will be fixed at a specific level in order to provide a ceiling on the cost that the Canadian public in general must bear for gas expansion in this area. This generous contribution should ensure that the laterals now approved will be built. At the same time, the ceiling will provide an important economic incentive for cost-effective and timely construction of the new pipeline facilities.

Traditionally in Canada, laterals constructed off transmission systems, such as those approved in Québec, have been owned and operated by gas distributors and regulated by provinces. The purpose of the "laterals fund" is to maintain this tradition, and to encourage participation of distributors in the operation of branch lines. Discussions will commence in the near future with all interested parties to promote quick completion of the transmission system and laterals in Québec so that the National Energy Program's off-oil objectives can be achieved.

When it announced the National Energy Program, the federal government also stated its preparedness to provide financial assistance, if required, to expand the gas transmission system to Vancouver Island. There has been some delay respecting this expansion; the terms of reference for provincial hearings are only now being finalized by the Government of British Columbia. The Government of Canada is concerned that the residents of the Island have suitable alternatives to oil at an early date, and awaits provincial action in this area. It is prepared to discuss with the Government of British Columbia the possibility of supporting alternatives to the Vancouver Island pipeline, should these be judged more cost-effective.

The National Energy Program embodies a set of policies and programs designed to maximize the use of natural gas in domestic energy markets in pursuit of energy security. Substitution of natural gas for oil fuels furthers achievement of this goal, and does so with a fuel that is attractively priced and clean-burning. The additional measures contained in this review reaffirm the Government of Canada's commitment to this important element in the program for achievement of energy self-sufficiency.

Gas exports

Even with the stimulus to the domestic gas market given by the National Energy Program, large quantities of gas are likely to remain surplus to domestic requirements. It is fully consistent with long-standing national energy policy to allow the export of this surplus, given reasonable assurance that sufficient gas is retained to meet the needs of the Canadian market at reasonable prices. This protection of domestic needs is all the more important in view of the determined effort to encourage Canadians to switch from oil to natural gas—the effort presupposes that Canadians need have no fear of gas shortages.

The National Energy Board is required to protect future Canadian needs for natural gas. It does so by making a periodic determination of the amount of gas that is surplus to reasonably foreseeable domestic requirements. Since earlier this year the Board has been carrying out, with full public participation, a careful examination of the question of how such a surplus should be determined. It has now announced a new formula to determine the maximum amount of gas that is surplus to foreseeable Canadian requirements. The Reserves Formula will compare established reserves with 25 times the current year's Canadian demand and anticipated export volumes. This formula provides a more realistic level of protection based on forecasted actual exports rather than authorized licence volumes.

However, not all the gas deemed surplus under the Reserves Formula will necessarily be exported. A Deliverability Appraisal will be used by the Board as a guideline to determine the annual quantities of gas surplus to foreseeable Canadian needs. The overall effect of these new procedures is to provide assured protection for future Canadian natural gas needs while maximizing opportunities for the export of natural gas determined to be surplus.

The Government of Canada agrees with this proposed approach. The natural gas industry has demonstrated in recent years its ability to find gas much more quickly than it is being consumed. Given current estimates of potential reserves, and a buoyant industry, this trend could well be maintained for some years. The Government wishes to encourage those who have been so aggressive in the exploration effort in the past half-decade. The Government of Canada and the Government of Alberta have of course agreed that should the National Energy Board find that a surplus exists over and above already licensed quantities, and recommends that some of this surplus be exported, additional exports will then be authorized.

Exports of liquefied natural gas (LNG)

Gas export applications about to be heard by the National Energy Board in the context of its "omnibus hearing" relate principally to pipeline supplies for delivery to the United States. Proposals are also being developed for the export of gas in liquefied form. Those for exports from the West Coast to Japan

are currently under review by the Government of British Columbia, and will be examined by the NEB later this year. Other proposals have been made, or are under development, for export of Arctic gas.

LNG exports would appear to offer the opportunity to develop new gas markets. As such, they have some attraction in terms of market diversification. At the same time, they raise new policy issues. Naturally, the Government of Canada will want to ensure that the issues raised by LNG exports, including duration of contracts, risk-sharing and pricing arrangements, are properly addressed, and the Canadian public interest secured.

The United States market for Canadian gas

Whatever level of exports is authorized by the Government of Canada, circumstances in the United States have been the key to actual levels. Despite the fact that the volumes of gas authorized for export have increased appreciably, actual volumes have declined since 1979. (It bears noting, however, that revenues have risen by some 44 per cent over the same period.) In the first quarter of 1982, only 63 per cent of the authorized export volumes was actually sold.

The causes of this trend are to be found in the weak performance of the United States economy; the impact of energy conservation on gas consumption; the renewed competition of U.S. domestic gas; the competition of oil fuels and electricity; and, in some cases, the impact of treatment by regulatory bodies in the United States.

United States export market prospects for Canadian gas in the medium term are somewhat uncertain. The total gas market is not expected to grow rapidly, particularly if further deregulation occurs and leads to higher prices. The United States petroleum industry seems for the moment to have stopped the lengthy historical decline in gas reserves. Whether that industry and the resource which it exploits have the capability to maintain this trend in the longer term is open to question. In some regional markets of particular importance to Canadian gas, the competition of fuel oil and electricity is likely to continue to limit demand for Canadian gas. Finally, the extent and impact of regulation at the state level is impossible to predict. It would probably be overly optimistic to expect major changes to the current system, which generally favours, in one way or another, U.S. gas over Canadian supplies.

The Government of Canada is concerned to ensure as far as possible that volumes found surplus to Canadian gas market requirements are fully taken up. It would not be reasonable for those with export approvals to view these arrangements as a form of option on Canadian gas, rather than as firm sales contracts. This is not fair to the gas producers, who bear the costs of finding the reserves and maintaining the productive capacity in order to obtain the export authorization. Nor is it fair to other utilities in the United States, which seek additional supplies of Canadian gas but are prevented from doing so because the successful applicants are holding rights to more gas than they are willing or able to use.

The Government of Canada therefore favours regulatory and commercial measures directed towards achieving a higher degree of utilization of exports already committed to traditional U.S. markets and supports current efforts to market Canadian gas in regions of the United States that are regarded as offering reliable new markets.

Export prices, in certain circumstances, can be an important factor in the demand for Canadian gas in the United States. The Government of Canada takes the view that natural gas is a valuable commodity whose long-term worth will be determined by the price of oil. Over the past year, the export price has been set somewhat below substitution value. To have reduced prices further would only have reduced overall returns to producers, and would have meant that Canadians were selling off their non-renewable resources for less than their long-term intrinsic value. The Government of Canada will, however, continue to show flexibility in implementing its export pricing principles.

Shut-in gas

The measures announced in this *Update*, combined with the programs initiated in the National Energy Program, should result in increased gas sales. The Government of Canada continues to be concerned that many small producers receive a disproportionately small benefit from such general increases in sales. Large established producers with existing contracts receive most of the benefits. Yet it is the small producer who in many cases has explored more actively, and who has found the new natural gas reserves which form the basis of increased sales.

In October 1980, the Government of Canada announced that it was prepared to look at the establishment of a Gas Bank to help small producers who could not sell their gas. The reaction of the oil and gas industry to this suggestion was mixed. Many have argued that the industry, working together in a voluntary way, can find ways to ensure that the small producers enjoy a share of new markets. Provincial governments, too, are looking at ways to reduce the shut-in gas problem. In view of these developments, the Government of Canada has decided not to proceed with the Gas Bank. It believes that the programs now put in place should increase gas sales, and that, provided the industry ensures that the small producers benefit from these increased sales, the Gas Bank will not be needed. The Government will, of course, watch with interest industry efforts in this respect. Special fiscal measures for small producers will be put in place to further enhance their position. These are discussed later in this chapter.

Equitable export market access

The Government of Canada is cognizant of the potential problem of allocation of gas from various existing and emerging domestic sources among

export markets and, at this time, reaffirms its commitment to fair and equitable treatment to producers in the provinces and the Canada Lands seeking approval of additional exports.

Electricity

Canada has abundant supplies of electrical energy, which are playing a major role in our efforts to substitute away from oil. Besides this important off-oil role, the availability of relatively low cost power in most parts of the country has helped create jobs and foster economic development. This will continue; as utilities are currently expanding capacity to meet projected future demands, both for the domestic market and to exploit export opportunities. In 1981, total Canadian electricity production was 378 terawatt-hours, an increase of 3.0 per cent over 1980. Domestic consumption was 344 terawatt-hours, an increase of 1.3 per cent over 1980. Net exports increased by 26 per cent from the previous year to 34 terawatt-hours, equivalent to about 9 per cent of total national electricity production. Canada's positive trade balance in electricity has grown from \$22 million in 1970 to \$477 million in 1978, and to \$1.1 billion last year.

All provinces have adequate electricity supply facilities in place, and have construction projects underway to provide for the future. Newfoundland is completing development of the remaining larger scale hydroelectric sites on the Island; Nova Scotia is constructing two-150 megawatt coal-fired units to displace much of the remaining oil-fired generation; New Brunswick is completing its first nuclear generating unit; Québec continues to develop its hydroelectric resources; Ontario has under construction three additional nuclear plants; Saskatchewan is developing both hydro- and coal-fired plants; development of three coal-fired plants is underway in Alberta; and in British Columbia, additional hydro generation is under construction.

As of December 1981, total installed generating capacity in Canada was 83,300 megawatts. Beyond this, generation additions during the next nine years, including projects planned and under construction, will increase capacity by 34,600 megawatts. Of the planned and committed additions noted above, about 10,000 megawatts is in nuclear capacity, 7,600 megawatts in thermal generation, mostly in western Canadian coal-fuelled stations, and nearly 17,000 megawatts is new hydroelectric capacity.

Electricity's important role in the effort to achieve energy security is already clear. Of those who have already converted off oil with help from the NEP, about 35 per cent switched to electricity. There is likely to be vigorous competition between electricity and other non-oil options for both conversions and new installations.

In announcing the off-oil component of the National Energy Program, the Government of Canada indicated that the shift to electricity would not be large enough to necessitate capacity expansions projected at that time. This is still the Government's view. In fact, there is likely to be an exportable surplus of

electricity through the decade. There will, of course, be new coal-fired plant construction or modifications, as in the case of Coleson Cove, New Brunswick, to switch the plant off oil. However, the off-oil program will force neither an acceleration of plant construction nor significant restrictions on exports.

Coal: A Fuel from the Past is Again Important

Coal is an important Canadian resource both in energy terms and as a contributor to economic growth. In 1981, the value of production, at the mine, exceeded one billion dollars and Canada became a net coal exporter for the first time. Coal currently meets about 11 per cent of primary energy demand in Canada, mainly for the generation of electricity and the production of steel. A significant export market has also emerged in the last few years.

Coal utilization requires careful attention to environmental considerations such as the use of land, the maintenance of water quality and containment of atmospheric emissions. The Government of Canada is firmly committed to a resolution of the acid rain problem and intends to pursue its negotiations vigorously with the United States and with the provinces in the coming year. There is every reason to expect that a substantial reduction of acid rain can be reached through a judicious selection of alternative electrical supply options, introduction of new technologies, and by the institution of regulatory measures agreed to by the provinces concerned.

Coal is important in a regional development context and nowhere is this more true than in Nova Scotia. The Cape Breton Development Corporation (CBDC) is a federal Crown corporation which is bringing new mines into production. A new mine has been opened at Lingan, the new Prince mine is in the early stages of production, and a start has been made on the major development planned at Donkin-Morien where extensive tunnelling operations under the sea have now begun. Rehabilitation of the older facilities and opening of new mines at the older sites are also under consideration.

Reference has been made elsewhere in this document to the special federal initiatives in Atlantic Canada related to coal. To recap, the following activities are underway:

- Research and development on a variety of new technologies relating to coal mining and coal utilization;
- Construction of demonstration plants using fluidized-bed combustion technology at Summerside, P.E.I. and Point Tupper, Nova Scotia;
- A new laboratory on Cape Breton Island dedicated to the health and safety aspects of underground coal mining; and
- Assistance towards the conversion of the Coleson Cove generating station from oil to coal.

Coal is also important to regional development in other parts of Canada. The most important example at the present time is that two companies are opening new mines in northeastern British Columbia with government support in the form of construction of related infrastructure. The project will result in annual exports of about 7 million tonnes of metallurgical coal, over 1 million tonnes of thermal coal, with initial shipment scheduled for late 1983. With a total private and public investment of over \$3 billion, it is one of the largest coal agreements ever completed in the world.

A new rail spur is being built by the B.C. Railway to link the new mines with the railway's existing line at Anzac. Two major tunnels are being drilled to cross the Continental Divide. The existing C.N. line from Prince George to Prince Rupert is being upgraded to handle heavier and longer trains, and a new loading facility will be capable of loading the largest ships now active in the international coal trade with an annual loading capacity in its first phase of 12 million tonnes. It is being built under an arrangement between the National Harbours Board and a private group under which the NHB guarantees up to 80 per cent of the cost in exchange for 90 per cent of the equity.

It is also noteworthy that there are other promising coal deposits in the northeastern B.C. region that could be served by the infrastructure now being put into place. The Government of Canada anticipates that additional mines will be opened in this region, as well as elsewhere, in the coming decade.

The use of coal in Canada predates Confederation. Although it declined in importance in the immediate post-war period, due to the ready availability of cheap oil, often

imported, the coal industry is again playing an important role in the economy since oil supplies have become tighter. At present, tremendous benefits can be obtained from export sales in the form of job creation and demand for equipment and materials. In the future, new uses, such as the production of liquid fuels from coal, could play an important role in the industry. The Government of Canada will continue to support and encourage these new developments for the benefit of all Canadians.

Aside from the basic physical capacity to generate electricity, Canada enjoys another valuable asset: the CANDU nuclear option. This draws upon Canadian resources and Canadian talent to produce what is demonstrably the best nuclear electrical generating package in the world. CANDU plants in Ontario have consistently set world records for performance and low cost.

Yet it has been difficult to sell these plants in today's market. Forecasts of electricity demand in most countries are now much more moderate than they were in the 1970s. Other industrialized countries are aggressively seeking nuclear reactor markets to provide economies of scale for their nuclear industry.

Thus, while Canadian marketing efforts continue, new export sales are by no means assured. If they do not materialize, Canada's nuclear technology industry—the CANDU option—will be in difficult straits. Even if some sales can be made, some consolidation of the industry is probably inevitable.

The Government of Canada believes that the CANDU system should be preserved, if only to keep Canada's energy options open in an uncertain world. This means either future sales in the export market, against stiff competition; or domestic sales, when no new capacity is needed for some time to serve the Canadian market.

However, there may be a limited opportunity to serve a number of objectives. There probably is a market for additional electricity in the United States, especially in the northeast region. Discussions at the federal and provincial government level, and between U.S. and Canadian utilities, indicate considerable scope for mutual benefit.

The Government of Canada welcomes a pursuit of new export markets for electricity. Assuming an equitable distribution of the risks and financial burdens between buyers and sellers, and satisfaction of appropriate environmental standards, export markets represent an opportunity to install the capacity that Canada may need beyond the decade, and to finance it out of export earnings. In the case of nuclear generating capacity, such transactions would have the added advantage of using and maintaining a competitive and important technology: the CANDU system.

The Government of Canada has provided generous financial support to the construction of CANDU in Canada, where the power is primarily for

domestic use. It would be prepared to consider some form of support for future nuclear plants, even if—initially, at least—they are built to serve the export market. In the case of a possible Lepreau 2 plant, the Government of Canada is prepared at this time to work with the New Brunswick Power Corporation and to provide immediate financial support to pursue an arrangement with U.S. utilities that would allow Lepreau 2 to be built in the immediate future. Such an arrangement would of course have to meet the general criteria of the Government of Canada with respect to price- and risk-sharing. This kind of support would also be considered for other interested utilities.

One of the most promising developments over the past decade has been the growing interconnection of provincial electrical systems. In this way, economies of scale and the benefits of lowest cost power can be shared among Canadians. Moreover, system resilience is improved considerably.

The most recent example of steps in this direction is the study by Manitoba and its neighbours of a Western Grid, drawing principally upon that province's hydroelectric resources. This initiative is welcome, not only from an energy point of view but for the economic benefits it would bring. The Government of Canada will study the economic and financial implications of the project, and it will give serious consideration to a request by the Province of Manitoba for a financial contribution to this project.

Shut-in oil

Over the past year, domestic production of oil has not been at maximum feasible levels. While historically some oil has often been shut-in in western Canada, the current level of shut-in has in some months been quite high, and comes at a time when other economic pressures on the industry make it difficult for the industry to absorb the cost of a lower level of production. The Government of Canada considers it essential that Canadian domestic oil be used to meet Canadian needs, and is deeply concerned about the level of shut-in oil that has existed in recent months.

Initially, the shut-in reflected the continuing influence of additional imports by eastern refiners, which were arranged at the time of the Government of Alberta's mandatory production restrictions and which could not be immediately cancelled. In addition, soft international oil market conditions impaired U.S. demand for Canadian heavy crude oils. Export demand has been insufficient to absorb all heavy crude productive capacity surplus to Canadian requirements.

The most important long-run cause, however, has been, and will continue to be, the fall in domestic demand for oil products. This rapid demand reduction, explicitly encouraged by the National Energy Program, has imposed new strains on the oil supply system. As domestic demand falls across the country, refiners with access to both domestic and imported crude oil will have to reduce imports, and buy more domestic crude oil. This concentrates the adjustment process on the eastern Canadian refiners. These refiners have to adjust

their crude oil buying programs to reflect the new supply-demand balances across the country.

While these importers are making such adjustments, the speed with which they are able to do so has not matched the rate of decline in domestic demand. The situation this year has been further exacerbated by refiners' efforts to minimize oil inventories. This has reduced demand for crude oil even further. Finally, in a few instances some refiners took advantage of the availability of some unusually low priced international oil cargoes to reduce their costs of crude oil, further reducing demand for domestic crude.

April 1st program

On April 1, 1982, the Government announced an action program designed to increase domestic oil production. It had the following principal features:

- Assurance that Canadian heavy crude oil exports to the United States will continue to be competitively priced;
- National Energy Board consideration of export licences for heavy crude oils for periods up to one year;
- The National Energy Board to consider applications for exchanges of light and heavy crude oil via United States into eastern Canada;
- The National Energy Board to evaluate whether chronically shut-in crude oil, such as Saskatchewan light sour blend, can be allocated separately to refiners in eastern Canada or considered surplus to domestic requirements and exported;
- Eastern Canadian refiners to import only minimum volumes required under their offshore supply contracts; and
- Offshore contracts for heavy crude not to be renewed unless tied to access to light crude.

A monitoring system has been established to review import receipts and company offshore supply contracts to ensure compliance with this program. While this process is still underway, there are clear indications as to the positive impact of the April 1st program. Interest in Canadian heavy crudes has picked up in export markets. The shut-in of heavy crude in Saskatchewan and Alberta has fallen from over 12,000 cubic metres (75,500 barrels) per day in March to around 6,000 cubic metres (37,800 barrels) per day in May and could be further reduced in June. The large April shut-in of light crude oil, of over 50,000 cubic metres (314,600 barrels) per day, was substantially due to the seasonal shutdown of domestic refineries for routine maintenance. It is likely to average approximately 15,000 to 20,000 cubic metres (94,400 to 125,900 barrels) per day in May and to be reduced to close to zero in June.

Future shut-in expectations

The degree of future shut-in, particularly with respect to light crude oil, depends largely on the relationship between falling domestic demand for oil products and the continuing reduction in the producibility of light western Canadian crude oil. There is obviously room for differing judgements in this regard.

It is possible that a continued decline in Canadian oil demand could cause a recurring risk of shut-in oil over the short term. Furthermore, Montréal refiners will have to continue to take sufficient import volumes to ensure the ongoing viability of the Portland pipeline, which provides them with their only year-round access to foreign oil. In some months, when high synthetic output coincides with reduced refinery requirements for technical reasons, the volume of shut-in conventional oil may be substantial.

Some experts argue that, if shut-in capacity were counted as part of Canada's oil production, Canada would be now at or close to self-sufficiency on a net basis. With the prospect of a continuing rapid decline in Canadian oil consumption, there is, according to this view, an on-going risk of substantial shut-in. This line of argument proceeds to suggest that direct action should be taken to end the shut-in, by either explicitly forcing out imports or permitting light oil exports, and that we need not be concerned about the potential impact of these actions on Canadian oil security.

While it might be tempting to view current circumstances as reflecting conditions of self-sufficiency, and therefore an appropriate occasion to fundamentally revise Canada's oil import and export policies, this would be overly optimistic, even imprudent. Despite favourable import trends, eastern Canada is likely to continue to depend on imports to meet at least part of its oil requirements for some years. Therefore, proposed solutions to the shut-in problem which could significantly disrupt traditional import relationships, or which deflect to the export market light oil needed now or later in Canada, are not consistent with Canada's energy security objectives.

Nevertheless, a potential shut-in problem over the medium term does exist. The duration of this problem depends on the extent to which domestic demand continues to fall, and the outlook for domestic supply. The performance of the export market is also critical. Measures are needed to reduce the shut-in over the coming year. During that period, it should become clearer whether Canada's long-term import needs have been permanently reduced. Thus the measures taken should be such as to allow us to continue to maintain our positive relationship with our traditional suppliers of imports.

New measures to alleviate shut-in problem

The Government is taking the following additional measures to further reduce potential shut-in volumes. It will:

- Restrict crude oil imports to those volumes under term contracts necessary to preserve continued access to offshore oil;
- Adjust the method of calculation of the Oil Import Compensation Program flat rate to ensure that it is more responsive to offshore oil prices paid by Canadian importers;
- Initiate a program to purchase some additional volumes of western Canadian crude oil for storage; and
- Provide, in special circumstances, financial support to assist the movement of western crude oil to eastern Canada via exchanges with U.S. refiners.

Import restrictions

In its April 1 program, the Government had indicated that it was willing to allow refiners to substitute lower cost spot imports for contract volumes provided total imports did not exceed scheduled levels. In light of expectations that domestic demand will continue to decline, the Government is asking refiners to:

- Review all their import contracts, and, on renewal, to reduce imports to the minimum level, which they believe prudent given the need to ensure long-term access to imports; and
- Avoid importing any oil outside these contracts.

Modification to Oil Import Compensation Program

Some believe, incorrectly, that the Oil Import Compensation Program provides an incentive to refiners to buy low-cost offshore crude oil at the expense of both domestic producers and the consumer. This false impression results from a misunderstanding of the functioning of the program. There is unquestionably an incentive to individual importers to minimize offshore crude costs—this is one of the basic objectives of the flat-rate compensation system. However, any low-priced cargo brings down the average industry import cost and reduces, correspondingly, compensation to all importers. Therefore, on average there is never any incentive to use imported rather than domestic oil.

To blame the Oil Import Compensation Program for the shut-in situation is to believe that it makes offshore oil cheaper than comparable-quality domestic crude, and that this has resulted in a move away from the latter, in favour of imported crude, by eastern refiners. There has been no substantial shift towards imported oil this year. Import volumes in the first half of 1982 are below levels for previous years. Moreover, as the table below indicates, purchases of medium and light offshore crudes made at official Government selling prices, which comprise over three quarters of Canada's crude oil imports, have not been landing in Canada at prices, after compensation, out of line with those of domestic crude oil.

Furthermore, the current compensation system has, since the mid-1970s, been successful in achieving national objectives with regard to oil supply and pricing. It is an essential element in implementing the Government's one-price policy, which provides all Canadians with access to crude oil at the same average price, apart from transportation costs. Since it does not bias or distort imported oil price signals, it has ensured efficient offshore oil purchasing by Canadian refiners.

The Government has reviewed the methodology applied in calculating the flat rate and is adopting a change to the previous practice. Formerly, the rate was set prior to the month in which it was to be applied using estimates of prices likely to prevail. While this method did take into account low-cost imports, it did so only with a lag. The system has been modified, effective April 1, 1982, so that in all cases actual rather than estimated costs will be used. This will make it more responsive to the impact on Canadian crude costs of changes in offshore oil prices. It will provide a further assurance to western producers that no incentive exists to use imported rather than domestic oil.

Import Cost Versus Domestic Crude Prices
(Canadian \$ per cubic metre)

	April 1982			January 1982		
	Arabian Light	Vene- zue- lan Light	Mexican Blend	Arabian Light	Vene- zue- lan Light	Mexican Blend
Percentage of Total Imports in First Quarter,						
1982	5.3	33.5	16.1	5.3	33.5	16.1
Import Price	284.00	281.00	247.00	284.00	281.00	232.00
Import Compensation.....	119.00	119.00	119.00	107.00	107.00	107.00
Net Landed Price	165.00	162.00	128.00	177.00	174.00	125.00
Domestic at Montreal	154.00	154.00	150.00	154.00	154.00	150.00
Import Price Exceeds/(Less than) Domestic Price	11.00	8.00	(22.00)	23.00	20.00	(25.00)

Notes:

- (1) Import cost landed at Montréal based on then-prevailing Canada/U.S. foreign exchange rate.
- (2) Mexican based on 50/50 mix of Isthmus and Maya crude. The only volumes of Mexican crude being imported are those under the state-to-state contract between Petro-Canada and Pemex, currently about 8,000 cubic metres per day.
- (3) The price shown for Venezuelan Light is that for Lagotreco.

Oil purchase program

As previously indicated, it can be expected that in some months shut-in oil productive capacity may peak due to seasonal or technical factors. To minimize the problem, the Government of Canada will discuss with industry a proposal for an oil storage program that would permit additional domestic crude oil production in months where it appeared that a significant volume of light crude oil would otherwise be shut-in.

There is currently some available surplus crude oil storage capacity, particularly on the East Coast, which will permit this program to be implemented and to have a noticeable impact in reducing potential shut-in volumes over the coming year. The stored oil would be disposed of at a time when its use would not affect domestic crude oil production, possibly as early as the last half of next year.

The net cost of this program is unlikely to be significant, and in any event will be borne by the Government of Canada.

Financial support for oil exchanges

Some refiners do not have pipeline access to Canadian crude oil. Because of the high cost of transporting Canadian oil to such refiners, it may not make economic sense to try to serve such areas on a permanent basis with western Canadian production. Within the decade such refiners will likely have access to oil from Hibernia.

In the short run, it may, however, be useful in special circumstances to allow such refiners access to Canadian oil. In 1979, some refiners sought domestic oil even with the higher transportation costs involved, because the world oil market was tight. The National Energy Board facilitated such access by allowing exchanges of light and heavy domestic crude between eastern Canadian and western U.S. refiners. The situation today is reversed, and it may not be sufficiently attractive for eastern refiners to make such exchanges.

The Government of Canada is prepared to examine on a case-by-case basis applications for financial assistance by refiners wishing to make such exchanges. The level of assistance will be up to the level of the costs that would be incurred in shipping Canadian oil to these refineries. This program will continue only as long as western Canadian crude oil remains shut in at significant levels, and will be available only to refiners without pipeline access to domestic oil.

Oil and gas price and fiscal measures

Increased gas sales and a reduction in the level of shut-in oil would go far towards solving the current problems of the oil and gas industry. Further

measures are, however, needed if the short-term cashflow constraints now affecting some of the oil and gas firms are to be reduced.

The Government of Alberta has recently revised its royalties. The September 1 Agreement had indicated that the Government of Alberta would review its royalties, and a reduction in their level had been expected. The changes that were made, however, were greater than many had anticipated, and reflected concern on the part of the Government of Alberta that recent changes in the world outlook had a negative impact on the industry and that some fiscal adjustment was needed.

It is useful to review some of the measures announced by the Government of Canada since September 1. These include the extension of the New Oil Reference Price to most experimental projects, to pentanes plus and, in some circumstances, to undrilled drainage units. These measures will be worth about \$100 million to the industry over the period to 1986. To assist low productivity wells the Government of Canada introduced a Low Productivity Well Allowance for wells producing less than 3.18 cubic metres per day. The value of this to the industry will be about \$150 million. It was also decided in the period since the Memorandum of Agreement that depletion for on-going capital expenditures would be provided to Suncor and Syncrude. This will be worth about \$60 million to these companies over the period to 1986.

Further fiscal relief is, however, required. The Government of Canada is heavily constrained in its capacity to provide financial relief. Not only have its projected energy revenues fallen, but its overall fiscal responsibilities in today's economic environment impose a heavy burden. Therefore, the relief that is possible will be targeted to groups which need it most, and which are prepared to invest in Canada's energy future. The Government of Canada believes that those who have taken risks should benefit, and those who are prepared to take them should be ensured very positive returns. The relief, as in the package announced by the Government of Alberta, will be structured so that many of the benefits come immediately. The overall fiscal and price framework which the provincial and federal governments are providing is sound. However, some immediate and short-term cashflow relief is justified.

Measures to improve the industry's cashflow

Reduction in the rate of the Petroleum and Gas Revenue Tax (PGRT). The PGRT is a tax of general application to the net operating income from production of oil and gas. The basic PGRT rate will be reduced from 16 to 14.67 per cent for the period June 1, 1982 to May 31, 1983. This will result in an effective tax rate on production revenue of 11 per cent after the resource allowance deduction already available. The resource allowance is a deduction equal to 25 per cent of production revenue determined before the payment of resource royalties.

The withholding tax rate on the payment of resource royalties with respect to production in the same 12-month period will also be reduced from 16 per cent to 14.67 per cent.

Reduction of the Incremental Oil Revenue Tax (IORT). The IORT now applies to additional revenue on old oil arising from increased prices above those set out in the NEP. The IORT on conventional oil will be reduced to nil for the period June 1, 1982 to May 31, 1983. This temporary reduction will be implemented by amending the regulation that establishes the "old oil base price". This is the base from which incremental revenue subject to the tax is measured. The regulation will specify that the old oil base price for conventional oil will be equal to per-unit proceeds from the disposition of old oil during the period commencing on June 1, 1982 and ending on May 31, 1983. Since the base price will effectively equal the selling price there will be no IORT payable during this 12-month period. Income not subject to IORT will be subject to provincial and federal income tax.

Special price for oil discovered after 1973. The wellhead price of oil discovered in the period after 1973 and qualifying for provincial royalties at "new oil" rates, but not in receipt of the New Oil Reference Price, will rise on July 1, 1982 to 75 per cent of the current world price. After July 1, the price will remain at this level (subject to a ceiling of 75 per cent of the world price) until the price of conventional "old" (pre-1974) oil reaches this level. Thereafter, all oil discovered before 1981 will again be treated in the same manner for pricing purposes.

Measures to improve the position of small producers

Small producers' PGRT exemption. An annual credit up to \$250,000 against the PGRT liability of corporations, on their production revenue (as determined under Division 1 of the *Petroleum and Gas Revenue Tax Act*) will be available. It will be available to offset taxes on revenue earned after May 31, 1982. Only one such credit will be allowed for each group of associated companies. Groups of associated companies will be required to apportion the credit among themselves.

Measures to improve the position of higher cost sources of oil

New Oil Reference Price for existing tertiary recovery projects. The New Oil Reference Price will be extended, as of January 1, 1983, to existing tertiary recovery projects which pay royalties no higher than those applicable to new oil.

Earned depletion for tertiary recovery projects. The Government of Canada will be prepared to provide earned depletion to tertiary recovery projects subject to agreement with the provinces on appropriate levels of royalty relief and provi-

sion of data indicating the justification for such support. Eligibility for earned depletion of very large projects (those involving investment in excess of \$100 million) will be considered on a case-by-case basis.

New Oil Reference Price for experimental projects. The New Oil Reference Price will be extended, as of January 1, 1983, to all experimental projects which pay a royalty no greater than 5 per cent of gross revenue.

New Oil Reference Price for suspended wells. The New Oil Reference Price will be extended, as of January 1, 1983, to oil wells that have been suspended for a period of at least three years, provided the production from these wells qualifies for new oil royalties.

Reduction in rate of PGRT for synthetic oil production from oil sands plants. The effective rate of PGRT on production revenue arising from synthetic oil production from integrated oil sands plants will be reduced from 12 per cent to 8 per cent for the period January 1, 1983 to December 31, 1984. This lower rate will be effected by providing for the deduction of a special allowance with respect to such revenue under Division I of the PGRT Act.

Impact of the measures

The total value to industry of the package of measures outlined above is more than \$2 billion over the period to 1986. Half of this amount is delivered in 1982 and 1983, when additional cashflow is most needed.

The distribution of this \$2 billion across firms within the industry depends on the size and investment performance of a company and on its success in finding new oil. Thus, for example, the 1 per cent reduction in PGRT, worth about \$200 million in the period 1982-86, is a general measure accruing to companies on the basis of their size as reflected by their resource income. All firms in the industry will benefit from this measure.

The IORT reduction for conventional oil, worth about \$250 million, will benefit firms that re-invest. Conversely, those firms which are not significantly re-investing may receive little advantage from the reduction of the IORT.

The increase in the price for "new/old" oil will benefit those firms that were successful in discovering oil in the period 1973 to 1981. These are the firms that responded to the higher prices that followed the first OPEC crisis. By accelerating price increases for this oil, the Government of Canada is able to increase by almost \$100 million in 1982-83 the cashflow of those who have sought new oil, while maintaining its commitment to pay no more than 75 per cent of the world price for conventional oil.

The small producers' PGRT Exemption, worth about \$900 million in the period 1982-86, will be available to all firms in the industry; however, in relative terms it is much more important to smaller firms. These are the firms that have been most successful in finding new oil in the period since 1973 and, therefore, incentives that benefit these firms most are particularly supportive of Canada's oil security objectives. It is worth emphasizing as well that the oil sup-

ply and service industry will benefit greatly from the increased exploration and development activity that this exemption, and the other measures outlined in this package, will stimulate.

The extension of the New Oil Reference Price to new categories of higher cost oil production will provide almost \$500 million to a relatively small number of producers. These companies have taken the risks associated with the production of oil from developments involving the use of novel techniques and technology that will be increasingly important in the future. This will allow some of these projects to continue despite their high costs, and will serve to indicate that the Government is prepared to reward risk takers.

The existing integrated tar sands plants, Suncor and Syncrude, have faced both technical and financial problems. Technically, they have had difficulty in operating continuously at capacity in Canada's tough winter climate. Financially, lower international oil prices impact directly and immediately on these plants. If these plants can demonstrate reasonable return on investment, new investment by present operators or by others contemplating oil sands ventures will be encouraged. These plants must earn sufficient returns to ensure that the debottlenecking investments necessary to solve their technical problems are made. The reduction in taxes for these two plants provides a significant cashflow improvement: about \$125 million, in the period 1982-86. The package of measures increases revenues accruing to the Government of Alberta and it is expected that these will be used to provide further relief to those plants. As a result of this cashflow improvement, it is expected that investments which resolve the technical problems, and allow mining of more costly sections of the leases, will be made.

Chapter 5

OUTLOOK

Preceding chapters have outlined progress in the array of measures designed to achieve the objectives of the National Energy Program. Additional measures designed to deal with new issues have been announced. This chapter will provide an update on the likely progress towards our energy objectives.

Oil and gas revenues, and incentives to invest

The fiscal arrangements of the National Energy Program, modified by the agreements with the provinces and reflecting the changes subsequently made by both the Government of Canada and the Government of Alberta, now provide sufficient cash flow and the necessary incentives to the industry to ensure the needed investment in this sector. Royalties exceed desirable levels in Saskatchewan, but the Government of Canada is confident that alleviating action will soon be taken by that province.

Government revenues from oil and gas have been eroded as a result of the slower growth in international prices. The forecast revenues accruing to the Government of Canada have fallen more sharply as a result of this factor than have provincial revenues. Measures announced in this package have resulted in a further reduction in federal revenues from production taxes. In total, revenues accruing to the Government of Canada over the period 1981-86 may be \$25 bil-

Comparison of Projected Revenues Now
With Those Anticipated in September, 1981
(1981-86)

	September 1981		Now*		Change	
	(\$ billions)	(%)	(\$ billions)	(%)	(\$ billions)	(%)
Canada	61	29	36	22	-25	49
Province.....	75	35	53	32	-22	43
Industry†.....	78	36	74	46	-4	8
Total	214	100	163	100	-51	100

* Incorporates Alberta April 13 measures and Federal measures in this document.

† Net of operating costs.

lion less than estimated last September, with much of the shortfall in the later years of the period.

This reduction in Government of Canada revenues, while regrettable and obviously constraining in terms of the overall fiscal relief which the Government of Canada can provide, reflects the nature of federal government taxation. The fiscal system is extremely profit sensitive, and allows the Government of Canada to take a large share of the upside should international oil prices rise. The downside of such a system is that revenues to the national government fall in periods of declining oil prices and profits.

Provincial revenues have fallen from those previously projected partly because of slower than expected international oil price increases, and partly because of royalty reductions. As a result of the measures now announced by the Government of Canada, provincial revenues in the form of corporate income tax and royalties will increase by about \$300 million over the period to 1986.

It is the Government of Canada's expectation that the Government of Alberta will use a portion of these additional revenues to augment the assistance provided by the Government of Canada to the Syncrude and Suncor synthetic oil plants. If the Government of Alberta proceeded in this manner, the two governments together would provide a significant portion of the funds required for the synthetic oil producers to resolve technical difficulties with the plants, to expand current capacity through expenditures on debottlenecking, and possibly to proceed towards a major expansion of productive capacity.

On April 13, the Government of Alberta expressed some concern that the interaction of the federal and provincial taxation regimes would result in the federal government taxing back some of the benefits accruing to industry as a result of its royalty reductions. This problem arose because the Incremental Oil Revenue Tax was structured, at the request of the Government of Alberta, in a way that treated royalties as a deduction. The fiscal changes now announced have addressed this problem. The Government of Canada gained about \$200 million as a result of the reduction in Alberta royalties in the period 1981-86. In the measures announced in this *Update*, all of this, and of course, much more, has been returned to the industry.

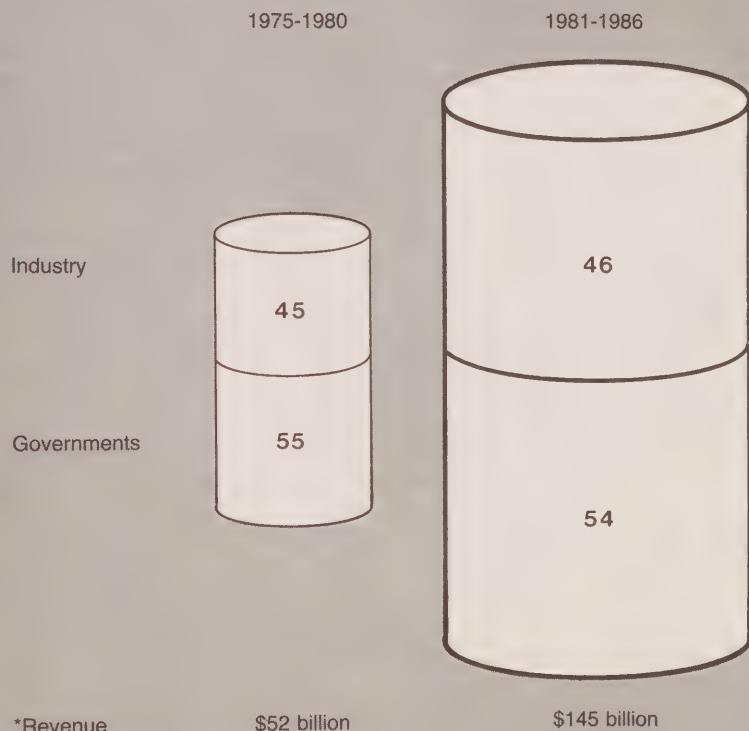
In Saskatchewan, there is a clear need to reduce royalties on oil production. The provincial government has indicated its intention to move in this direction, and the revenues which accrue to it through the measures proposed by the Government of Canada should permit the province to make deeper cuts than initially envisaged.

Despite the softening of international oil prices and reduced demand for oil and gas in recent months, the revenues that the oil and gas industry can now expect to receive over the period to 1986 are only about 5 per cent lower than those envisaged under the Memorandum of Agreement. Both through the automatic functioning of the fiscal regime now in place and as a result of specific actions undertaken by the Governments of Canada and Alberta to assist the industry, the forecast revenue reductions will be borne almost entirely by governments. In consequence, the industry's share of total oil and gas revenues

over the period to 1986 will rise from the 36 per cent anticipated last September to 46 per cent now. This is a clear indication of a fundamentally fair fiscal regime: on the downside, as prices and profits fall, the burden falls on Government, not the industry. When prices begin to rise, however, a growing share will accrue to governments.

There has been some criticism that the regime introduced in the NEP, and as subsequently modified, has improved the financial position of governments at the expense of the industry. While there are pricing scenarios, including the one envisaged last September, in which governments would increase their share of petroleum revenues relative to the industry, this is not now the

Revenue Sharing: Then and Now *



*Revenue

\$52 billion

\$145 billion

*Net production revenue plus the downstream taxes specified in federal-provincial agreements.

case. Industry received roughly 45 per cent of petroleum revenues in the period 1975-80. It can now expect to receive a marginally larger share, about 46 per cent, over the period 1981-86. Thus, the restructuring of Government revenue shares that took place as a result of the September 1 Memorandum of Agreement will reflect a more equitable sharing of revenues between governments. It will not be at the expense of the industry.

The oil and gas industry is now in a strong position to push ahead with an aggressive exploration, development and investment program. Its financial health has been significantly restored and the incentives to invest, particularly in the search for oil, are strong. The netbacks that large firms can expect on old and new oil more than double over the period to 1986. Netbacks on oil receiving the New Oil Reference Price more than triple. For the larger companies producing "old" natural gas, netbacks increase almost 90 per cent over the period to 1986. The increase is about 70 per cent for new gas.

For smaller producers, the impact of the \$250,000 PGRT exemption is dramatic. The exemption means that on net production income up to \$2 million, a corporation will not be liable for PGRT. Nor, as long as the company invests aggressively, will it have to pay income tax. In other words, an aggressive smaller corporation with no old oil production need pay no tax at all on its production income to the federal government. The Government of Canada estimates that as many as 200 corporations that now pay the PGRT will find themselves in this enviable position. Fewer than 100 corporations will remain liable for PGRT on their production income.

This measure should provide a dramatic stimulus to the high performers among the smaller firms. They will be very attractive vehicles for investment by Canadians. They have unprecedented investment targets in the form of new oil. In short, they have enormous potential to help Canada move towards its energy objectives, and to generate new wealth in the West and across the nation.

In summary, as a result of the fiscal and pricing measures put in place by the Government of Canada and the provincial governments, the oil and gas

Oil and Gas Netbacks* for Large Producers
(*\$ per cubic metre*)

	<i>Old oil†</i> (<i>Pre-1974</i>)	<i>New Oil†</i> (<i>1974-80</i>)	<i>NORP Oil</i> (<i>Post-1980</i>)	<i>Old Gas†</i> (<i>Pre-1974</i>)	<i>New Gas†</i> (<i>Post-1973</i>)
1981.....	26.30	42.48	42.79	18.13	25.50
1982.....	41.34	66.52	107.23	21.25	27.76
1983.....	54.87	76.40	110.31	25.78	32.58
1984.....	59.09	79.48	117.49	27.76	35.41
1985.....	63.43	88.23	127.37	30.59	39.38
1986.....	67.52	98.55	136.81	33.99	43.91

* For Alberta, using effective tax rates.

† The terms new and old oil, and new and old gas, are significant in terms of provincial royalty rates; rates generally being lower on new than old oil and gas.

Oil and Gas Netbacks* for Small Producers
(\$/ per cubic metre)

	<i>Old oil</i> <i>(Pre-1974)</i>	<i>New Oil</i> <i>(1974-80)</i>	<i>NORP Oil</i> <i>(Post-1980)</i>	<i>Old Gas</i> <i>(Pre-1974)</i>	<i>New Gas</i> <i>(Post-1973)</i>
1981.....	42.79	58.84	59.28	27.19	34.56
1982.....	67.65	93.01	162.92	35.41	41.36
1983.....	91.06	112.52	180.73	46.74	53.54
1984.....	96.85	115.98	196.65	51.56	59.21
1985.....	107.04	130.45	213.58	57.51	66.29
1986.....	119.56	148.83	230.19	64.02	73.94

* For a non-taxable company in Alberta.

industry is financially strong. It has the revenue base and, with the dramatic netbacks on new oil, the incentive to accelerate rapidly its expenditures on the exploration and development of Canada's petroleum resources.

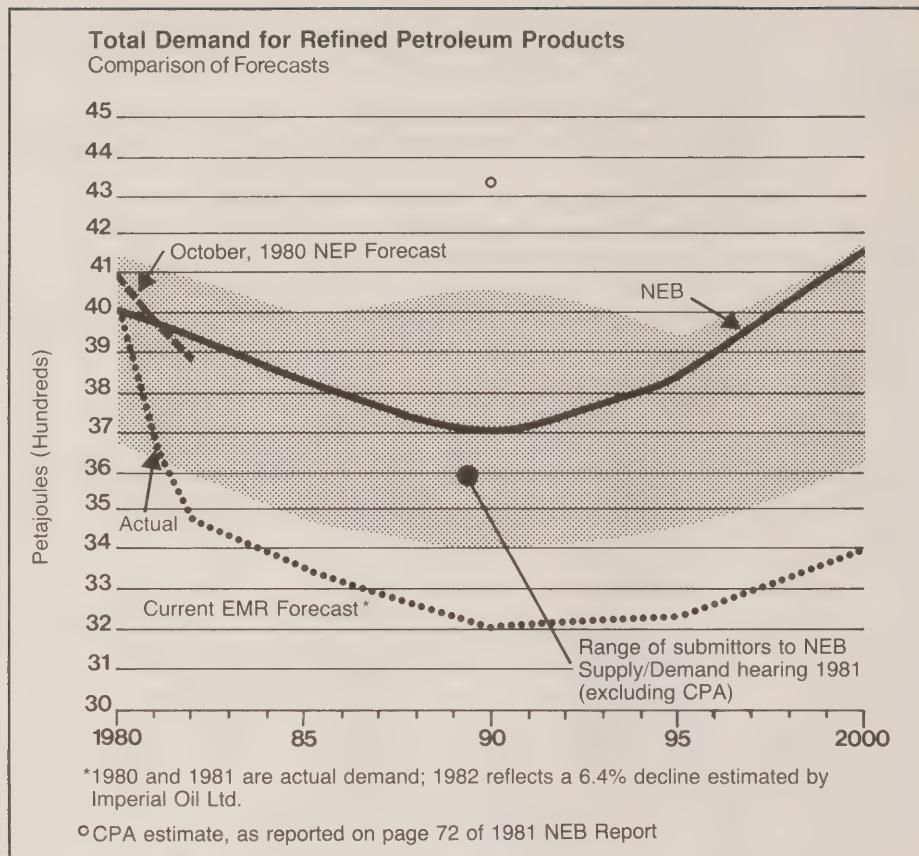
Oil supply and demand

Eighteen months have passed since the NEP was announced. In terms of energy security, the Government is confident that Canadians can, with a concerted effort, achieve the objectives set out in the Program. On the demand side, progress has substantially exceeded expectations. The prognosis is for a continuation of these already-evident trends of reduced energy demand growth, and substitution away from oil. It may be useful to set out in some detail the results of the latest projections prepared by the Department of Energy, Mines and Resources, using its Interfuel Substitution Demand Model.

The rate of growth of total energy demand is expected to be about 1.8 per cent per year in the 1981-1990 period, and 2 per cent per year in the 1991-2000 period. This is well below the assumed 3 per cent rate of Canada's economic growth.

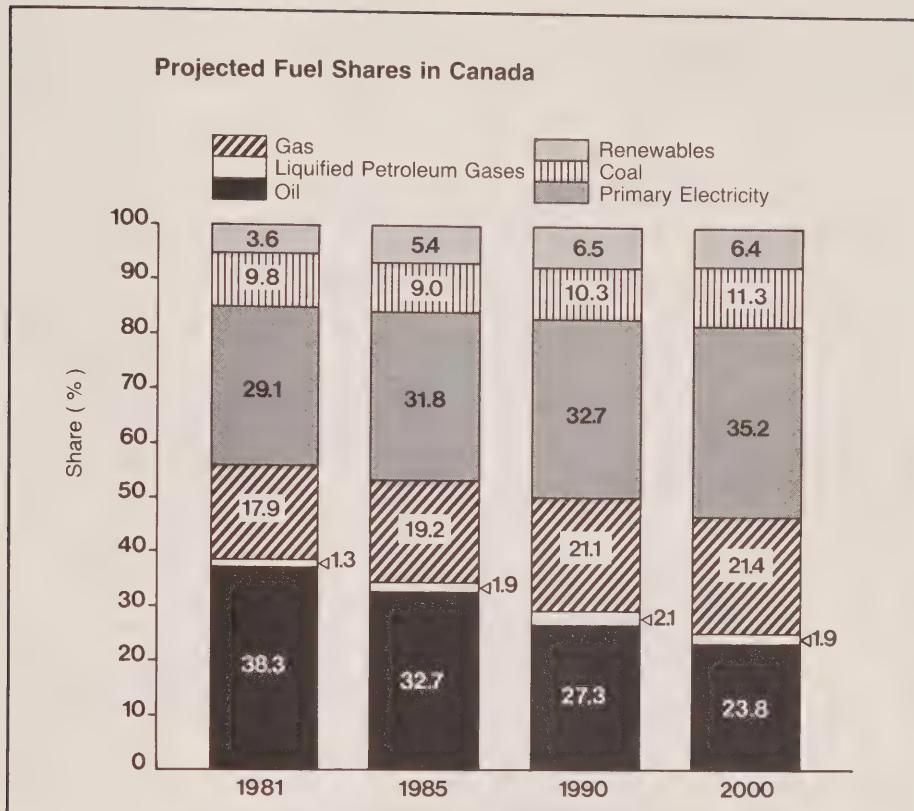
Total petroleum product demand in 1990 is projected to be about 18 per cent less than in 1980. Oil's share in total primary energy demand is expected to fall from 39 per cent in 1981 to 27 per cent in 1990, and to 24 per cent in the year 2000. The relative shares of all other energy forms will increase to make up for this decline in oil dependence.

The fall in oil demand will be most pronounced in the residential, commercial and industrial sectors of the economy, where technology permits easy substitution to other fuels. Total petroleum demand in these sectors will drop from 93,000 cubic metres (585,000 barrels) per day in 1980 to 44,000 cubic metres (277,000 barrels) per day in 1990. This is less than 10 per cent of energy consumption in these sectors. Even these numbers may overstate the role of oil, for there is no technical or economic reason why, in many regions of Canada, oil needs to be used at all for purposes other than transportation.



Oil demand in the transportation sector, where substitution is more difficult, is expected to be only slightly lower in 1990 than in 1980. Since the Canadian economy is forecast to grow by one-third by 1990, however, this small drop reflects a large improvement in energy efficiency in the transportation sector. Oil demand for other uses such as the production of asphalt, lubricants and greases, and petrochemical products will also grow somewhat, as the economy grows.

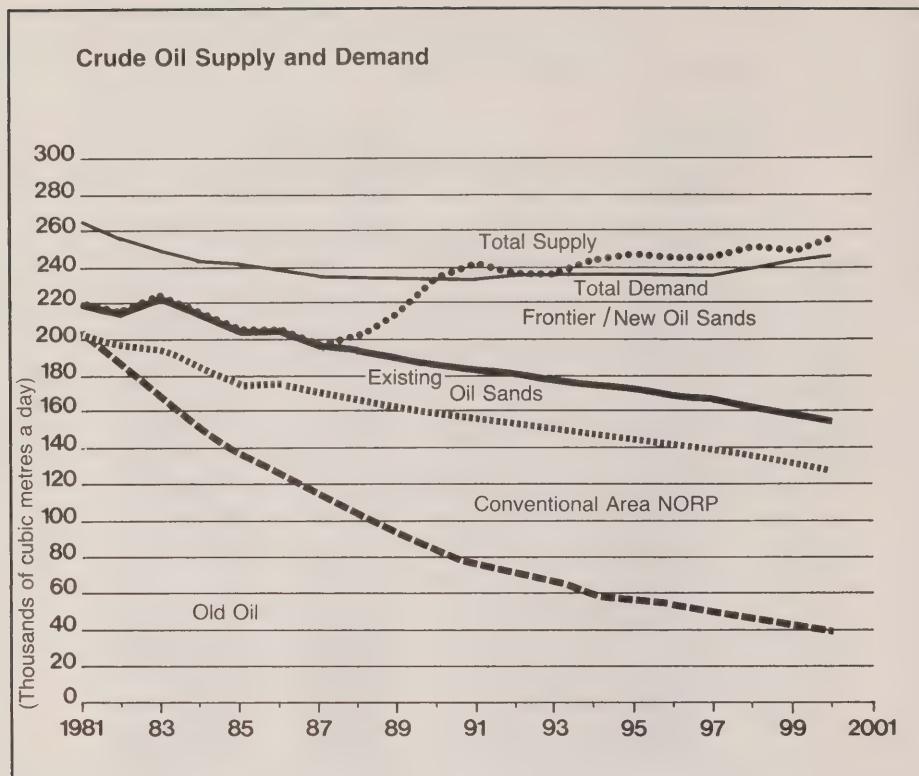
The net result will be a reduction of total petroleum product demands from 288,000 cubic metres (1.811 million barrels) per day in 1980 to 237,000 cubic metres (1.489 million barrels) per day in 1990. Total petroleum product demand includes more than crude oil. When translated into demand for crude oil this is a reduction from 284,000 cubic metres (1.785 million barrels) per day in 1980 to 233,000 cubic metres (1.465 million barrels) per day in 1990. The



reduction is the equivalent of the production from two and one-half Syncrude-scale oil sands plants.

On the supply side, the incentive for new oil in both the provinces and the Canada Lands, Canada's promising geology, and the certainty of federal-provincial accords, provide a combination that is very attractive by world standards. The onus is now on the petroleum industry to respond to the opportunity; to find enough reserves in the West and the frontiers to bring oil supply and demand into balance within the decade. The incentive framework is in place; an improved cash flow will be provided through measures outlined in this document.

Oil production from established conventional reserves in western Canada will continue to decline over the decade. Production from these reserves in 1981, which was affected by the Alberta government's production cutbacks, averaged 202,000 cubic metres (1.275 million barrels) per day, and is projected to decline to 135,000 cubic metres (850,000 barrels) per day in 1985 and 84,000 cubic metres (530,000 barrels) per day by 1990. The oil pricing and fiscal regime established in agreements with producing provinces greatly increases the



economic incentive for new oil developments that will offset a good portion of the decline in conventional "old" oil production.

New oil incentives will promote two major types of industry activity in the western provinces—exploration for new reserves and the application of new, and generally expensive, methods of extraction to existing reserves. New enhanced recovery is expected to reach 6,000 cubic metres (35,000 barrels) per day in 1985 and 20,000 cubic metres (125,000 barrels) per day by 1990. This production forecast is based upon the "modified base case" from the National Energy Board's June 1981 report on *Canadian Energy Supply and Demand 1980—2000*. That report was issued prior to the establishment of a NORP regime for light as well as heavy oils, but the estimate of enhanced oil production in the "modified base case" of that report fairly reflects the potential from established reserves.

The estimates of production from new discoveries in the western provinces set out in the table below are based upon the "high case" of the NEB's June 1981 report. The Board's assumption of undiscovered potential for the high case is closest to estimates by the Geological Survey of Canada.

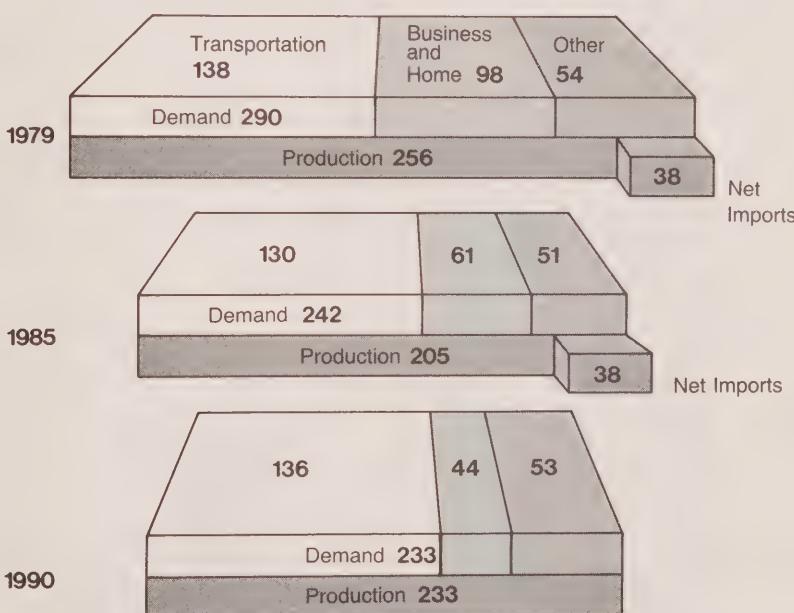
There is considerable uncertainty about the additional contribution to be expected from the oil sands. Even if either Alsands or Cold Lake were revived soon, it would probably be about the end of the decade before significant production was available from them. It is conceivable that smaller-scale plants,

Projected New Oil Production from Western Canada
(thousands of cubic metres per day)

	1985	1990
Enhanced Recovery.....	6	20
New Discoveries.....	28	47
Experimental.....	3	3
TOTAL	37	70

Canadian Oil Supply and Demand*

(Thousands of cubic metres a day)

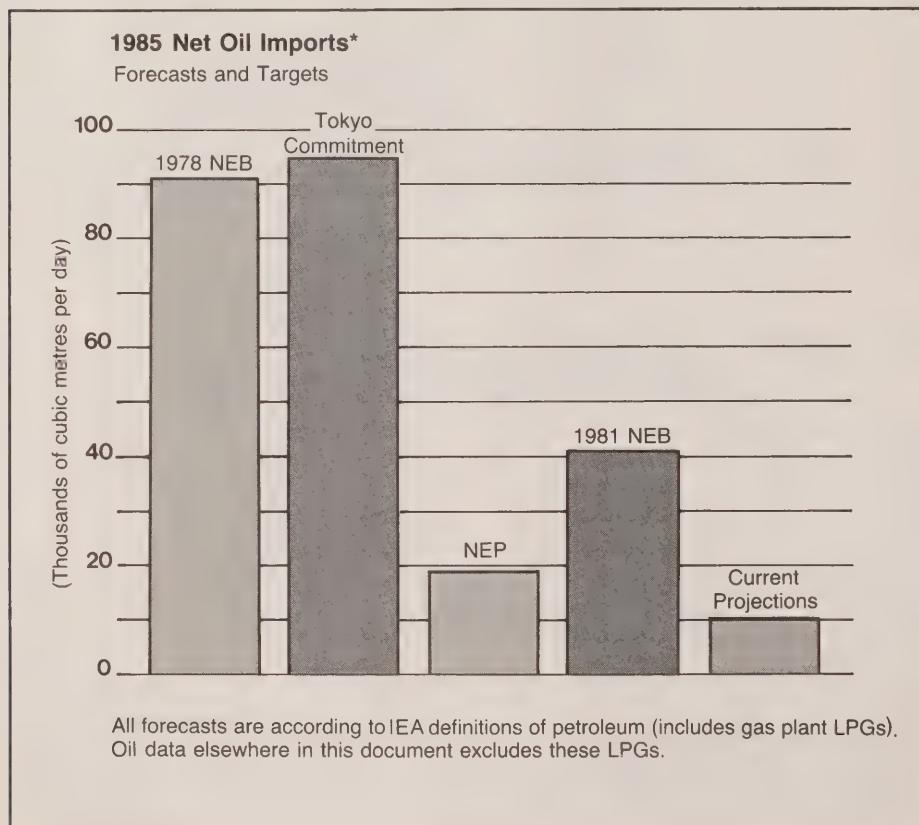


* In 1980, Statistics Canada changed its definitions to include farm motor gasoline and public sector aviation fuels within the Residential-Commercial-Industrial sector; rather than the Transportation sector. Adjustments to produce consistency with the NEP definitions would result in Transportation sector demand of 141,000, 160,000 and 148,000 cubic metres per day in 1985, 1990 and 2000 respectively and in Residential-Commercial-Industrial sector demand of 50,000, 31,000 and 21,000 cubic metres per day for those years. Any comparison with NEP estimates should be done on this basis.

geared more closely to the financial capacity of the sponsoring companies, could be put in place within the decade. This would depend heavily, however, on their perception of the future world price.

The Government of Canada has made substantial financial concessions to both the Suncor and Syncrude plants. The Syncrude operation, for example, is allowed to deduct, for income tax purposes, provincial royalties, in addition to the standard resource allowance available to other oil producers.

Among the package of industry measures contained in this *Update* are further concessions to existing oil sands plants—to enhance their profitability to levels that would serve as a positive indicator for others contemplating oil sands investments, and to provide additional cash flow for investment. The Government of Canada expects that this encouragement to the Suncor project will lead the company to embark on its "large-pit" program, designed to maximize production of oil over the longer term. In the case of Syncrude, it is anticipated that the financial concessions will encourage the partners to proceed immediately with capital investments to ensure production at its design capacity, and to begin on a priority basis studies of the feasibility of an expansion of the present



operation from the current design capacity of 21,000 to 32,000 cubic metres (130,000 to 200,000 barrels) per day. If these studies have positive conclusions, it is possible that Syncrude production could be increased significantly over current levels before the end of the decade.

In terms of the overall balance, Canada is doing better so far than had been anticipated in the 1980 NEP forecast. If present demand trends persist—and many experts now believe they will—Canada's oil imports will fall substantially in the early 1980s; rather than rise over 1980 levels, as had been earlier projected. We are moving much more quickly towards independence from the world oil market than had been expected by the Government of Canada in October 1980.

Canadianization

Chapter 3 outlined the steps already taken to ensure the success of the Canadianization effort. As was noted, remarkable progress has been made towards our objectives.

While there is a considerable distance to go, the program has been enormously successful. Indeed, having in mind that the ownership goals related to 1990, the process is probably ahead of short-term expectations.

The Government of Canada has an energy program for the decade. Elements such as the Petroleum Incentives Program are an integral and essential part of the drive towards both energy security and increased Canadian participation. They are features of the Canada-Alberta Agreement, covering the period to 1986. Beyond that, the factors determining the nature of the program would clearly be the achievement of sustained self-sufficiency and success in our Canadianization goals.

The Government of Canada welcomes the apparent shift in emphasis on the part of the Canadian private sector to increase its involvement in the industry through participation in farm-outs and joint ventures with foreign controlled companies. This ensures that the Canadian companies' money, reinforced by Petroleum Incentive grants, will go toward the search for oil and gas. Exploration agreements now being negotiated for the Canada Lands will encourage the arrangements whereby Canadians can farm into current landholdings, and become operators. It also gives rise to numerous opportunities for partnership between the foreign owned companies and the Canadian firms, to their mutual benefit. Several of the major oil and gas companies, including Esso, Gulf and Shell, have announced wide farm-out arrangements. This will lay the groundwork for the situation that the Government of Canada wishes to see in 1990: a strong Canadian component, second to none in its capacity to explore and develop oil and gas, alongside a strong group of foreign controlled companies, whose opportunities for profit and growth are at least as good as those around the world.

By 1990 we should accomplish our three goals: a significant increase in the level of public ownership, an increase in the number of large Canadian con-

trolled firms, and 50 per cent Canadian ownership of the oil and gas industry. Substantial progress has already been made towards our target for public sector ownership. As well, as previously indicated, Canadians now control five of the fifteen largest oil and gas companies. The objective is to increase that number, over the course of the decade. By the end of the decade, Canadians will control a significant number of the large firms.

Progress in meeting our target for 50 per cent Canadian ownership of production will depend partly on the degree of farm-ins and partly on whether further acquisitions take place. While Canadians have found more new oil in the western provinces than foreign owned firms (of the oil discovered between 1974 and 1981, more than half was by Canadians, and the share of NORP oil is even higher), foreign owned firms still have the best land position, both in the provinces and in the Canada Lands. Opening up the Canada Lands, so that Canadians can participate more fully in exploration for new oil, is a critical element of the policy.

The consumer

One of the fundamental premises of the National Energy Program is fairness to the consumer. This is expressed in the arrangements now in place, in several ways:

- Made-in-Canada oil prices that vary according to Canadian agreements and conditions, rather than world price developments;

Consumer Heating Costs

It is misleading to focus solely on oil prices in considering the position of the Canadian consumer under the National Energy Program. Unlike consumers in most other countries of the world, many Canadians have access to alternative fuels that are both secure and inexpensive relative to oil. The National Energy Program seeks prices for natural gas at levels that ensure it will capture markets now held by oil. It envisions a substantial price advantage for gas, and provides further funds to support a shift off oil. Electricity, too, is competitive with oil for space heating in many parts of Canada, and the advantage will increase over time. Propane, now priced at 55 per cent of crude oil, on an energy equivalent basis, is also available in wide areas of Canada. Renewable energy, too, is increasingly attractive as an off-oil option. In most regions, there will be little need to use oil at all for most stationary purposes.

The cost of heating the average home in Canada is now about \$1,025, or 25 per cent less than heating the same home in the United States. If oil consumers use \$500 federal CHIP grants and insulate wisely, their heating costs could be reduced by \$255. A further \$200 saving in heating costs could be achieved by taking advantage of the \$800 federal COSP grants for substitution to natural gas. Similar savings could be realized in most areas, by switching to other fuels.

In total, annual heating costs for an average house in Canada could be reduced to about \$600. These savings would require action by the consumer, but this action is required for Canada's energy security and will be assisted financially by the Government of Canada. Also, by taking these measures a consumer could actually see heating costs in 1985 that are much lower than his oil costs this past heating season.

- Blended oil prices, which for the decade will remain significantly below those paid by consumers in any other industrialized country;
- Plentiful, attractively-priced alternatives to oil for most uses; and
- Financial assistance to help consumers switch to these alternatives, and save energy.

In no other country, anywhere, do consumers enjoy such a combination of price protection and help to reduce their dependence on oil.

While protecting the consumers against dramatic increases in world prices, reductions in world prices are passed on to the consumer. There is good news for the consumer in this respect. In September 1981, it had been assumed that some increase in the Petroleum Compensation Charge (PCC) would be necessary to finance the increased cost of imports. Because both imports and world oil prices will now be lower than anticipated, no increase in the PCC will be needed. Indeed it is now hoped that, provided international prices do not rise suddenly, decreases in the PCC will occur, thus offsetting the effects of the scheduled wellhead price increases.

Oil price increases, therefore, should now be less than anticipated. While some increases will occur, these will occur only because current prices are well below world levels. The blended oil price, which includes the PCC (a charge designed to blend into the price of conventional oil the cost of imports and NORP oil), will remain well below the international price. The Government of Canada has kept its promise to oil consumers.

The news is even better for natural gas. Wholesale natural gas prices should be lower than anticipated in September 1981. As with the blended oil price, lower natural gas prices are a result of lower federal taxes. The Govern-

Domestic Gasoline Prices

Energy costs will rise over time but the energy system now in place will continue to generate substantial consumer benefits. It may appear to be an anomaly that oil prices in Canada are rising even as world prices are stable. However, this merely reflects the fact that we are now substantially below world prices. The blended consumer price is only 71 per cent, and old oil only 54 per cent, of world levels. Although prices will increase, consumers are protected by the fact that the price of old oil, which now makes up over 85 per cent of total domestic production, will never exceed 75 per cent of world levels.

A number of Canadians have equated the current world market situation to falling gasoline prices in the United States. Gasoline prices are now at relatively comparable

levels in Canada and the United States. However, these prices are determined by a number of factors, the most important of which is the level of provincial or state taxes. This ranges widely in Canada, from zero in Alberta and Saskatchewan, to 13¢ a litre in Québec. On average, provincial taxes in Canada are substantially higher than equivalent state taxes in the United States.

Until 1979 gasoline prices were higher in Canada than in the United States, reflecting higher retail taxes. The fact that crude oil costs are substantially lower in Canada has kept Canadian gasoline prices below U.S. levels since 1979. However, provincial gasoline taxes have increased substantially since 1978, for example by 51 per cent in Ontario and 210 per cent in Québec.

ment of Canada now intends to freeze the Natural Gas and Gas Liquids Tax at its current level, for all of 1982. Some decrease for 1983 may now be possible provided international oil prices do not increase. This will provide some price relief to consumers.

The Government of Canada intends to maintain natural gas prices at approximately two-thirds parity with the blended oil price. This provides a large price break for consumers and helps to promote fuel switching from oil products to natural gas. The Government has kept its promise to gas consumers.

Forecast of Oil Price Increases
(*\$ per cubic metre*)

	1982	March 1983
<i>Forecast in Agreements</i>		
Wellhead	28.30	25.20
PCC Increase	10.70	7.20
TOTAL	39.00	32.40
<i>Present Forecast</i>		
Wellhead	28.30	25.20
PCC Increase (Decrease)	—	(4.70)
TOTAL	28.30	20.50
Difference	10.70	11.90
Blended price as a percentage of world price	75%	78%
	(September)	(March)

An International Comparison of Gasoline Prices

Canadians often lose track of just how reasonable our petroleum prices are relative to other countries. While domestic prices have increased, the table below demon-

strates that our gasoline prices are far below levels in other industrialized countries.

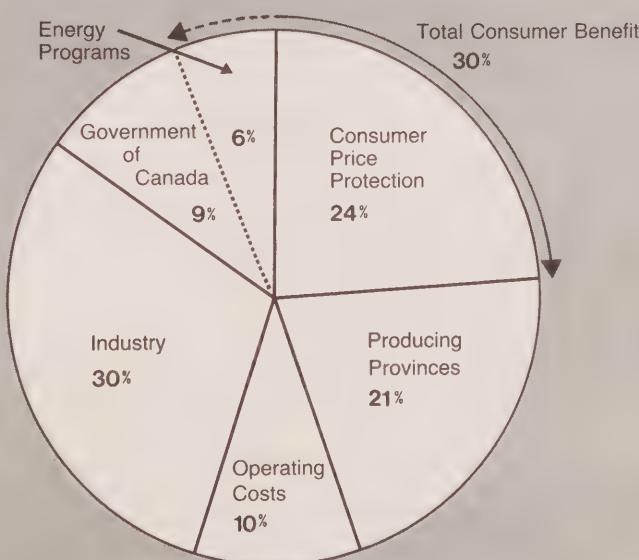
	Canada	United States	United Kingdom	France	Italy	West Germany
January 1981	30.6	38.9	82.1	88.3	101.5	73.6
July 1981	36.4	42.1	80.3	77.5	86.2	73.0
January 1982	39.3	40.5	81.9	83.7	93.3	74.5
Higher than in Canada by		3%	108%	113%	137%	90%

All prices are in Canadian cents per litre.

Over the term of the agreements, consumer energy costs in Canada will be the lowest of any industrialized country. Prices will rise, but the pricing system that is now in place ensures that oil and natural gas prices will be substantially below world levels. The value of this consumer price protection is huge. Projected domestic consumption of oil over the term of these agreements would cost Canadians \$39 billion more if priced at world levels, instead of the made-in-Canada prices established in agreement with producing provinces. Of course, domestic natural gas prices are even lower, reflecting the relative abundance of this resource. Canadian natural gas costs over the 1981-86 period would be over 40 per cent, or \$21 billion, higher if priced at world levels.

The extent of this energy price protection in Canada is huge. It represents the equivalent of \$2,500 for every Canadian. Yet this may be a conservative estimate of consumer benefits from our pricing regime, since it assumes only modest growth in world oil prices. If world prices increased dramatically, as they have in the past, the degree of consumer price protection would grow substantially, since we have not linked domestic oil prices to the world market. Consumers are, in a very real sense, sharing directly in the value of Canada's energy resources. Their share of the world-level value of oil and gas compares

Sharing the Value of Canada's Petroleum Resources (1981-1986)



very favourably with the net energy revenues accruing to the energy industry, the producing provinces or the Government of Canada.

This is particularly the case given the fact that a significant share of the federal revenue share will be returned to Canadian consumers through direct energy programs that will assist their adjustment to higher prices by subsidizing investments in conservation and fuel-switching.

Chapter 6

CONCLUSION

Only two and a half years ago Canada's energy situation appeared uncertain and troubling. World oil prices had recently doubled, and the government of the day had been unable to reach agreement with the producing provinces on oil and gas prices. At the 1979 Economic Summit meeting, Canada said that it would need net oil imports of at least 95,000 cubic metres (600,000 barrels) per day in 1985. Oil demand was growing at a rate of 3.5 per cent a year. The oil and gas industry in Canada was dominated by foreign owned oil and gas firms, and the fiscal system reinforced this dominance.

The land regime on the Canada Lands allowed these firms to hold millions of acres for many years, under lenient work requirements, with little prospect for Canadians to participate in these ventures. There was a danger that Petro-Canada, the national oil company, would no longer be an instrument of national policy—rather, it would be “privatized”.

The federal government's fiscal situation in respect of this industry was untenable. Oil import compensation alone was costing the Government about \$3 billion a year, and yet its share of oil and gas revenues was about one quarter of the provincial share. Canadians, through their taxes, were being asked to bear an unfair share of the burden of running the national economy, because the federal government's share of petroleum revenues was inadequate.

In just a short time, the situation has been fundamentally changed. The National Energy Program, combining initiatives by the Government of Canada, agreements with several provinces, provincial measures, and entrepreneurial initiatives on the part of the private sector, has transformed the situation.

Canadians now have a stable environment guaranteeing made-in-Canada prices for the next five years. Oil imports will probably never be as high again as they were in 1980. Oil imports in 1985 will be less than half the figure predicted only two and one-half years ago.

Canadian firms are now playing a major role in both the western basin and the Canada Lands, and will own at least half of Canada's oil and gas production by 1990. Canada's national oil company, Petro-Canada, has become the fourth largest oil and gas company in Canada, and operates coast to coast.

The Government of Canada has an agreed and fair share of the revenue from the oil and gas sector, and prospects for continued stability in this respect appear strong.

The National Energy Program represents a bold initiative. Canadians are taking their energy future in their own hands, determined to build on their energy strengths. Much has been accomplished. Much remains to be done. But with the steps now taken, and with continued commitment, the future is clear. We, the Canadian people, will have an energy future which is secure, fair, and belongs to us.



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Resources Canada**

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